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UNITED STATES DEPARTMENT
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BIBLIOGRAPHY
OF SCIENTIFIC AND INDUSTRIAL REPORTS

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—62278

ERRATA:

PB 95084 U. S. BUREAU OF SHIPS. Parts and instruction books: Internal combustion engine. Model: American locomotive 539, 540. May 1945. 535f Microfilm $9.00 Enlargement Print $7.00 (Bib. v. 11, p. 25)

Enlargement Print should be $70.00.

PB 73566s I. G. FARBENINDUSTRIE A.G., LUDWIGSHAFEN, GER. Measuring and control gear, miscellaneous researches in hydrocarbon synthesis and ethylene chemistry, etc. 1924-1945. 14p Microfilm $1.75 Photostat $2.50

Should be PB 73566s2.

Drugs and Pharmaceuticals

PB 95599

France. Ministère de la Production.
Annual research reports and formulae for pharmaceuticals, drugs and vitamins. 1934-1944. 346f (Text in German) Mi $9.00 Enl Pr $45.00
1. Pharmaceuticals—Research—Germany 2. Drugs—Research—Germany 3. Vitamins—Research—Germany 4. I. G. Farbenindustrie A. G., Elberfeld, Ger. 5. Micro FIAT A 344, Frames 2360-2706 6. Micro BIOS FD 737/47, Frames 2360-2706

PB 32536t15

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.
Alival: Process for manufacture. Dec 1948. 4p Available from Research Information Service, 509 5th Ave., New York 17, N. Y. $4.50
Translation of PB 32536
1. Alival—Preparation—Germany 2. Chemicals—Preparation—Germany 3. Micro QMC TSR 19, Reel V, translation

PB 32536t13

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.
Allegan (Preparation 4002): Process for manufacture. Jan 1949. 3p Available from Research Information Service, 509 5th Ave., New York 17, N. Y. $2.75
Translation of PB 32536
1. Allegan—Preparation—Germany 2. Allegan (Preparation 4002) 3. Chemicals—Research—Germany 4. Micro QMC TSR 19, Reel V, translation

PB 32536t9

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.
Antipyrin and antipyrin salicylate (phenyl dimethylpyrazolonum salicylicum). Process for manufacture. Jan 1949. 20p Available from Research Information Service 509, 5th Ave., New York 17, N. Y. $24.00
Translation of PB 32536
1. Antipyrin (Trade name) 2. Antipyrin salicylate (Trade name) 3. Salipyrine—Preparation—Germany 4. Chemicals—Preparation—Germany 5. Micro QMC TSR 19, Reel V, translation

PB 32536t6

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.
Cholera vaccine process for manufacture. Jan 1949. 1p Available from Research Information Service, 509 5th Ave., New York 17, N. Y. $2.00
Translation of PB 32536
1. Vaccines—Preparation—Germany 2. Cholera—Vaccines—Germany 3. Micro QMC TSR 19, Reel V, translation

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PB 32536t4

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.
Depot-insulin process for manufacture. Dec 1948. 2p Available from Research Information Service, 509 5th Ave., New York 17, N. Y. $2.00
Translation of PB 32536
1. Insulin—Therapeutic use—Germany 2. Insulin—Preparation—Germany 3. Chemical—Preparation—Germany 4. Micro QMC TSR 19, Reel V, translation

PB 32536t2

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.
Depot-insulin with 80 I.U. process for manufacture. Jan 1949. 1p Available from Research Infromation Service, 509 5th Ave., New York 17, N. Y. $2.00
Translation of PB 32536
1. Insulin—Therapeutic use—Germany 2. Insulin—Preparation—Germany 3. Chemicals—Preparation—Germany 4. Micro QMC TSR 19, Reel V, translation

Dyes

PB 25626t

I. G. Farbenindustrie A. G., Leverkusen, Ger.
Benzoform blue BBL. 1948. 5p Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $4.50
Translation I of PB 25626
1. Micro FIAT C 186, Frames 1158-1160, trans.

PB 74198s

I. G. Farbenindustrie A. G., Leverkusen, Ger.
Dyestuffs and intermediate products. 1931-1941. 4p Mi $1.25 Ph $1.25
See also Micro BIOS FD 235/47 (PB 74197), Micro BIOS FD 259/47 (PB 93096), Micro BIOS FD 2537/46 (PB 74573)
Supplement I to PB 74198
1. Micro BIOS FD 235A/47, Part II, Frames 870-1182, abstracts 2. Micro BIOS SO 1801/47, Part II, Frames 870-1182, abstracts 3. BIOS DOC 1440/1122/A1-A54, p. A1-A8, abstracts 4. BIOS DOC 1440/1122/A1-A54, p. A9-A35, abstracts 5. BIOS DOC 1440/1122/A1-A54, p. A35-A42, abstracts 6. BIOS DOC 1440/1122/A1-A54, p. A43-A45, abstracts 7. BIOS DOC 1440/1122/A1-A54, p. A46-A54, abstracts 8. BIOS DOC 1440/1122/B, abstracts 9. BIOS DOC 1440/1122/C1-C48, abstracts 10. BIOS DOC 1440/1122/ G1-G90, p. G1-G74, abstracts 11. BIOS DOC 1440/1122/G1-G90, p. G75-G90, abstracts 12. BIOS DOC 1440/1122/HA1-HA50, abstracts 13. BIOS DOC 1440/1122/HB1-HB51, abstracts 14. BIOS DOC 1440/1122/HC1-HC12, abstracts 15. BIOS DOC 1440/1122/HD, abstracts 16. BIOS DOC 1440/1122/J, p. J1-J23, abstracts

PB 70135t6

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Constitution of fanal dyes and the concept of pure dye content: "Fanal bremen blue B supra." Dec 1948. 3p Available from Research Information Service, 509 5th Ave., New York 17, N. Y. $2.25
Translation of PB 70135
I. Micro FIAT G 18, Frames 1411-1412, translation

PB 70135t5

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Fanal blue B supra 100% moist and powder. Dec 1948. 11p Available from Research Information Service, 509 5th Ave., New York 17, N. Y. $11.25
Translation of PB 70135
I. Micro FIAT G 18, Frames 1388-1394, translation

PB 25626t3

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Heliogen blue G (Non-metallic phthalocyanine). 1948. 6p Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $5.75
Translation 3 of PB 25626
I. Micro FIAT C 186, Frames 1120-1125, trans.

PB 70135t4

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Zapon fast blue HFL. Dec 1948. 10p Available from Research Information Service, 509 5th Ave., New York 17, N. Y. $10.50
Translation of PB 70135
I. Micro FIAT G 18, Frames 1347-1353, translation

PB 70426t2

I. G. Farbenindustrie A. G., Offenbach, Ger.
Arylides of 3-oxyfluorene-2-carboxylic acid. 1938. 3p Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $3.75
Translation 2 of PB 70426
I. Micro FIAT E 23, Frames 5416-5418, trans.

PB 70426t3

I. G. Farbenindustrie A. G., Offenbach, Ger.
Improved process for preparing fast bordeaux GP base. 1948. 5p Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $6.75
Translation 3 of PB 70426
I. Micro FIAT E 23, Frames 5624-5628, trans.

PB 32532t132

I. G. Farbenindustrie A. G., Offenbach, Ger.
Naphthol AS-LB extra conc. Dec 1948. 8p Available from Research Information Service, 509 Fifth Ave., New York 17, N. Y. $11.50
Translation of PB 32532
I. Micro QMC TSR, Reel 1, trans.

—62278

PB 70426t4

I. G. Farbenindustrie A. G., Offenbach, Ger.
New combinations of yellow for printing purposes. 1938. 5p Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $8.25
Translation 4 of PB 70426
I. Micro FIAT E 23, Frames 5922-5925, trans.

PB 95585

Kalie Chemie A. G., Sehnde, Ger.
Production of Parisian, Berlin and Milori blue at the Berlin Works of Kali Chemie A. G. Nov 1946. 46f (Text in German) Mi $2.50 Enl Pr $7.50
No abstract available
I. Dyes—Production—Germany 2. Micro BIOS FD 1965/47, Frames 1-45

PB 96668

Samuels, H. and others.
Accelerated light fading equipment in I. G. 1948. 5p (fold drawing) Mi $1.25 Ph $1.25
I. Dyes—Light fading equipment—Germany 2. I. G. Farbenindustrie A. G. 3. BIOS FR 1818, Item 31

PB 85172s12

U. S. Office of Military Government for Germany.
Amino-methyl-diphenylmethane-carboxylic acid. (Amino HT acid). n.d. 2p tables Mi $1.25 Ph $1.25
Supplement 12 to PB 85172
I. Dyes and dyeing—Germany 2. Amino-methyl-diphenylmethane-carboxylic acid—Germany 3. I. G. Farbenindustrie A. G., Höchst, Ger. 4. FIAT FR 1313-12

PB 85172s16

U. S. Office of Military Government for Germany.
Amino sulfamide (for Anthralan Blue FR). n.d. 2p tables Mi $1.25 Ph $1.25
Supplement 16 to PB 85172
I. Dyes and dyeing—Germany 2. Amino sulfamide (Trade name) 3. Anthralan blue FR (Trade name) 4. I. G. Farbenindustrie A. G. 5. FIAT FR 1313-16

PB 85172s10

U. S. Office of Military Government for Germany.
Anthralan blue FR. n.d. 2p tables Mi $1.25 Ph $1.25
I. Dyes and dyeing—Germany 2. Anthralan blue FR (Trade name) 3. I. G. Farbenindustrie A. G., Leverkusen, Ger. 4. FIAT FR 1313-10

PB 85172s13

U. S. Office of Military Government for Germany.
Anthramethane (for Supranol brilliant blue G). n.d. 2p tables Mi $1.25 Ph $1.25
Supplement 13 to PB 85172
I. Dyes and dyeing—Germany 2. Anthramethane (Trade name) 3. Supranol brilliant blue G (Trade

name) 4. I. G. Farbenindustrie A. G., Leverkusen, Ger. 5. FIAT FR 1313-13

PB 85172s18

U. S. Office of Military Government for Germany.
Indanthrene red violet RH. n.d. 2p tables Mi $1.25 Ph $1.25
Supplement 18 to PB 85172
1. Dyes and dyeing—Germany 2. Indanthrene red violet RH (Trade name) 3. I. G. Farbenindustrie A. G., Höchst, Ger. 4. FIAT FR 1313-18

PB 85172s17

U. S. Office of Military Government for Germany.
Indanthrene red violet RH new. n.d. 2p tables Mi $1.25 Ph $1.25
Supplement 17 to PB 85172
1. Dyes and dyeing—Germany 2. Indanthrene red riolet RH (Trade name) 3. I. G. Farbenindustrie A. G., Höchst, Ger. 4. FIAT FR 1313-17

PB 85172s4

U. S. Office of Military Government for Germany.
Methylene blue Ia, IaD, and medicinal. n.d. 3p tables Mi $1.25 Ph $1.25
Supplement 4 to PB 85172
1. Dyes and dyeing—Germany 2. Methylene blue Ia (Trade name) 3. Methylene blue IaD (Trade name) 4. Methylene blue medicinal (Trade name) 5. I. G. Farbenindustrie A. G. 6. FIAT FR 1313-4

PB 85172s9

U. S. Office of Military Government for Germany.
Methylene blue MT. Nov 1946. 2p (Text in German) Mi $1.25 Ph $1.25
Supplement 9 to PB 85172
1. Dyes and dyeing—Germany 2. Methylene blue MT (Trade name) 3. I. G. Farbenindustrie A. G. 4. FIAT FR 1313-9

PB 85172s5

U. S. Office of Military Government for Germany.
Methylene blue NNX. n.d. 3p tables Mi $1.25 Ph $1.25
Supplement 5 to PB 85172
1. Dyes and dyeing—Germany 2. Methylene blue NNX (Trade name) 3. I. G. Farbenindustrie A. G. 4. FIAT FR 1313-5

PB 85172s6

U. S. Office of Military Government for Germany.
Methylene blue 2AM. n.d. 3p tables Mi $1.25 Ph $1.25
Supplement 6 to PB 85172
1. Dyes and dyeing—Germany 2. Methylene blue 2AM (Trade name) 3. Thioninblau GO (Trade name) 4. I. G. Farbenindustrie A. G. 5. FIAT FR 1313-6

PB 85172s7

U. S. Office of Military Government for Germany.
New methylene blue NSS. Dec 1945. 2p (Text in German) Mi $1.25 Ph $1.25
Supplement 7 to PB 85172
1. Dyes and dyeing—Germany 2. Methylene blue NSS (Trade name) 3. I. G. Farbenindustrie A. G. 4. FIAT FR 1313-7

PB 85172s11

U. S. Office of Military Government for Germany.
Nitro-methyl-benzoyl-benzoic acid (Nitro T acid). n.d. 2p tables Mi $1.25 Ph $1.25
Supplement 11 to PB 85172
1. Dyes and dyeing—Germany 2. Nitro-methyl-benzoyl-benzoic acid—Germany 3. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 4. FIAT FR 1313-11

PB 85172s15

U. S. Office of Military Government for Germany.
Nitro sulfamide (for Anthralan blue FR). n.d. 2p tables Mi $1.25 Ph $1.25
Supplement 15 to PB 85172
1. Dyes and dyeing—Germany 2. Nitro sulfamide (Trade name) 3. Anthralan blue FR (Trade name) 4. I. G. Farbenindustrie A. G., Höchst, Ger. 5. FIAT FR 1313-15

PB 85172s20

U. S. Office of Military Government for Germany.
Safranine T extra concentrated. n.d. 2p tables Mi $1.25 Ph $1.25
Supplement 20 to PB 85172
1. Dyes and dyeing—Germany 2. Safranine T extra (Trade name) 3. I. G. Farbenindustrie A. G., Höchst, Ger. 4. FIAT FR 1313-20

PB 85172s14

U. S. Office of Military Government for Germany.
Supranol brilliant blue G. n.d. 2p Mi $1.25 Ph $1.25
Supplement 14 to PB 85172
1. Dyes and dyeing—Germany 2. Supranol brilliant blue G (Trade name) 3. I. G. Farbenindustrie A. G., Höchst, Ger. 4. FIAT FR 1313-14

PB 85172s19

U. S. Office of Military Government for Germany.
Thio-3B acid (for indanthrene red violet RH). n.d. 3p tables Mi $1.25 Ph $1.25
Supplement 19 to PB 85172
1. Dyes and dyeing—Germany 2. Thio-3B acid (Trade name) 3. Indanthrene red violet RH (Trade name) 4. I. G. Farbenindustrie A. G., Höchst, Ger. 5. FIAT FR 1313-19

PB 85172s8

U. S. Office of Military Government for Germany.
Toluidin blue. Nov 1946. 2p (Text in German) Mi $1.25 Ph $1.25
Supplement 8 to PB 85172
1. Dyes and dyeing—Germany 2. Toluidin blue (Trade name) 3. I. G. Farbenindustrie A. G. 4. FIAT FR 1313-8

PB 85172s2

U. S. Office of Military Government for Germany.
Wool fast blue FBL. n.d. 3p tables Mi $1.25 Ph $1.25
Supplement 2 to PB 85172
I. Dyes and dyeing—Germany 2. Wool—Dyes and dyeing—Germany 3. Wool fast blue FBL (Trade name) 4. I. G. Farbenindustrie A. G. 5. FIAT FR 1313-2

PB 85172s

U. S. Office of Military Government for Germany.
Wool fast blue FGL. n.d. 3p tables Mi $1.25 Ph $1.25
Supplement 1 to PB 85172
I. Dyes and dyeing—Germany 2. Wool—Dyes and dyeing—Germany 3. Wool fast blue FGL (Trade name) 4. I. G. Farbenindustrie A. G. 5. FIAT FR 1313-1

PB 85172s3

U. S. Office of Military Government for Germany.
Wool fast violet FB. n.d. 3p (Text in German) Mi $1.25 Ph $1.25
Supplement 3 to PB 85172
I. Dyes and dyeing—Germany 2. Wool—Dyes and dyeing—Germany 3. Wool fast violet FB (Trade name) 4. I. G. Farbenindustrie A. G. 5. FIAT FR 1313-3

Agricultural Chemicals

PB 95312

Coates, H. and Topley, B.
Synthetic insecticides. Interrogation of Dr. Gerhard Schrader. 1947. 42p Mi $2.50 Ph $6.25
I. Insecticides—Preparation—Germany 2. BIOS FR 1808, Item 22 3. BIOS IR 810

PB 96864

Gt. Brit. Central Office of Information.
Britain fights locusts: Lecture notes. Film strip no. 114. 1948. 46f Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.60
30 day loan item
I. Locusts—Distruction—Gt. Brit.

PB 96864s

Gt. Brit. Central Office of Information.
Britain fights locusts: Lecture notes. Film strip no. 114. 1948. 5p Available from British Information Service, 30 Rockefeller Plaza, New York 20, N. Y. $1.60
30 day loan item

Plastics and Plasticizers

PB 96702

Battelle Memorial Institute, Columbus, Ohio.
Literature survey on the properties of plastics influencing their stability in storage. Artillery storage program. May 1946. 104p Mi $4.50 Ph $13.75
To be published in Modern Plastics Encyclopedia, 1949
I. Plastics—Stability 2. Artillery—Storage

PB 74694s

Dynamit A. G., Troisdorf, Ger.
Preparation and testing of plastic compositions used in the manufacture of hard-boards. Abstract. 1936-1946. 9p Mi $1.25 Ph $1.25
Abstract of Micro FIAT M 176, Frames 6120-6695 (PB 74694)
I. Micro FIAT M 176, Frames 6120-6695, abstracts 2. Micro BIOS FDX 126, abstracts

PB 95138

I. G. Farbenindustrie A. G., Leverkusen, Ger.
Plastic products: Desmodur O. 1943. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95138s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Plastics—Polymers—Germany 2. Desmodur (Trade name) 3. Micro BIOS FD 2458/47, Frames 1-2

PB 95214

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Collacral A and Collacral A Type KD, plastic products. 1943. 6f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95214s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Plastics—Germany 2. Collacral (Trade name) 3. Casein—Germany 4. Micro BIOS FD 2454/47, Frames 1-5

PB 95216

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Igamid softeners, 5 new and 11, plastic products. 1942. 25f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 95216s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Plasticizers—Germany 2. Igamid (Trade name) 3. Micro BIOS FD 2486/47, Frames 1-24

PB 95353

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Leguwal—plastic product. 1943-1944. 8f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95353s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Leguwal (Trade name) 2. Plastics—Germany 3. Micro BIOS FD 2497/47, Frames 1-7

PB 70058t3

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Process for manufacturing xylenol-formaldehyde resin. Jan 1949. 9p Available from Research Information Service, 509 5th Ave., New York 17, N. Y. $17.00
Translation of PB 70058

I. Micro FIAT J 15, Frames 9100-9106, translation

PB 95140

I. G. Farbenindustrie A. G., Schkopau, Ger.

Igelit PCU plant: Tetrachloric phthalic acid-ethyl butyl ester as softener for Igelit PCU compared with Palatinol HS and Tricresyl phosphate G. 1941. 8f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95140s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Igelit PCU (Trade name) 2. Plasticizers—Germany 3. Palatinol (Trade name) 4. Tricresyl phosphate—Germany 5. Micro BIOS FD 2316/47, Frames 1-7

PB 95158

I. G. Farbenindustrie A. G., Schkopau, Ger.

Manufacture of sodium butylate for the production of plasticizers. 1942. 7f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95158s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Plasticizers—Production—Germany 2. Sodium butylate—Germany 3. Micro BIOS FD 2070/47, Frames 1-6

PB 95143

I. G. Farbenindustrie A. G., Schkopau, Ger.

Plastic products: Plastopal I. 1941-1942. 4f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95143s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Plastopals (Trade name) 2. Micro BIOS FD 2531/47, Frames 1-3

PB 95141

I. G. Farbenindustrie A. G., Schkopau, Ger.

Plastic products: Polymers Desmodur HH, TH, TT and TZ. 1943-1944. 20f (Text in German), Mi $1.75 Enl Pr $3.75

See PB 95141s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Plastics—Polymers—Germany 2. Desmodur (Trade name) 3. Isocyanates—Germany 4. Micro BIOS FD 2457/47, Frames 1-19

PB 95159

I. G. Farbenindustrie A. G., Wolfen, Ger.

Plastic product Triafol with thermoplastic adhesive layer. 1943. 1f Mi $1.25 Enl Pr $2.50

See PB 95159s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Plastics—Germany 2. Triafol (Trade name) 3. Micro BIOS FD 2546/47, Frame 1

PB 96354

Kappelmeyer (Dr.)

Dutch report on Chemische Werke Albert, Biebrich near Wiesbaden: Manufacture of synthetic resins. 1946. 12p drawings Mi $1.75 Ph $2.50

I. Resins, Synthetic—Germany 2. Chemische Werke Albert, Wiesbaden, Ger. 3. Netherlands Military Mission. Technical Research 4. BIOS M 109

PB 96357

Kappelmeyer (Dr.)

Dutch report on some German factories for synthetic resins. Apr 1947. 16p Mi $1.75 Ph $2.50

I. Factories—Synthetic resins—Germany 2. Resins, Synthetic—Germany 3. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 4. Netherlands Military Mission. Technical Research 5. BIOS M 115

PB 96351

Netherlands Military Mission. Technical Research.

The manufacture of some synthetic resins. Dec 1946. 19p graph Mi $1.75 Ph $2.50

I. Resins, Synthetic—Manufacturers—Germany 2. Albert, C & H., Wiesbaden, Ger. 3. Wacker, Alexander Gesellschaft für Elektrochemische Industrie, G.m.b.H., Burghausen, Ger. 4. BIOS M 91

PB 25924r3

U. S. Air Force and U. S. Navy Dept.

Grommet: Drainage, plastic. Air Force-Navy aeronautical standard. Oct 1948. 1p drawings, table Mi $1.25 Ph $1.25

Revision 3 of PB 25924

I. AN 231-3

PB 74394s

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Munich, Ger.

Preparation, properties and applications of various vinyl compounds, aldehyde resins, polyamides and derivatives of crotonic acid. (Progress reports). Abstract. 1930-1945. 5p Mi $1.25 Ph $1.25

Abstract of Micro FIAT G 149, Frames 515-1045 (PB 74394)

I. Micro FIAT G 149, Frames 515-1045, abstracts 2. Micro BIOS FDX 157, abstracts

Paints, Varnishes and Lacquers

PB 95261

Llewellyn, H. M. and Eldridge, H. J.

Painting new plaster and cement. 1948. 32p illus Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.35

I. Cement—Tests—Gt. Brit. 2. Plaster—Gt. Brit. 3. Surface fihishes 4. Paints, Protective 5. DSIR NB B2

PB 95494

Rickmann (Dr.) & Rappe K. G., Cologne, Ger.

Manufacture of antimony oxide, antimony opacifiers, and special preparations for the enamelling

industry. 1946. 14f Mi $1.75 Enl Pr $3.75

See PB 95494s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Antimony oxide—Germany 2. Opacifiers—Germany 3. Enamel and enamelling industry—Germany 4. Micro BIOS FD 3348/47, Frames 1-13 5. Micro BIOS DOC 2045/778, Frames 1-13

Ordnance Chemicals

PB 96520

Wehrse (Herr) and others.

Discussion on 18.11.1942 (at the dynamite firm) and on 14.1.1943. 1942. 5p Mi $1.25 Ph $1.25

I. Dynal—Germany 2. Godynin (Trade name) 3. Tronal (Trade name) 4. Gt. Brit. Ministry of Supply 5. Micro GDC 16/429H(b)T, translation

PB 94968r

Witten, Benjamin and others.

Sensitivity data of the chemical agent detector kit M9. Oct 1944. 52p photos, tables Mi $2.50 Ph $6.25

I. CWS TDMR 862, rev.

Analytical Chemistry

PB 31593s

Analytical results and methods for gas purification catalysts. Jan 1938. 8p tables Mi $1.25 Ph $1.25

I. Gases—Purification—Germany 2. Catalysts, Hydrogenation—Germany 3. FIAT FR 731, Supp. I.

PB 95866

Berger, Sven V.

Intensity measurements on Zn-Fe-spinel and its solid solutions with Fe_2O_3. Chemistry including metallurgy series, v. I, no. 4. 1948. 12p illus, drawings, graphs Mi $1.75 Ph $2.50

I. Zn-Fe-Spinel—Intensity measurements—Sweden 2. Crystal structures 3. Chalmers University of Technology, Gothenberg, Sweden 4. Acta Polytechnica no 66 1948

PB 27838t

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.

Rapid method for determination of acetic acid in cellulose acetates. Sep 1948. 3p drawing, table Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $3.25

I. Micro FIAT B 4, Frames 5985-5988, trans.

—62278

PB 95209

I. G. Farbenindustrie A. G., Schkopau, Ger.

Miscellaneous analysis methods, physical and chemical data, etc. 1931-1944. 188f (Text in German) Mi $6.75 Enl Pr $25.00

See PB 95209s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Chemistry, Industrial—Germany 2. Micro BIOS FD 2097/47, Frames 1-187

PB 85009

Klemm, Wilhelm and others.

Analytical chemistry of inorganic substances. 1948. 326p (Text in German) Mi $9.00 Ph $41.25 Mimeo: $3.00

I. Chemistry, Analytic—Germany 2. Substances, Inorganic—Germany 3. U. S. Field Information Agency, Technical

PB 95986

Zeitschrift für analytische chemie. (Journal for analytic chemistry). v. 123. 1942. v. 124. 1942. v. 125. 1943. v. 127. 1944. (Incomplete) 662f (Text in German) Mi $9.00 Enl Pr $86.25

I. Chemistry—Periodicals—Germany 2. Micro FIAT O 117, Frames 1527-2189

Chemical Engineering and Equipment

PB 74807s

AFGA Camerawerke, Munich, Ger.

Drawings of chemical plant, machinery and apparatus. 1931-1944. 2p Mi $1.25 Ph $1.25

Supplement to PB 74807

I. I. G. Farbenindustrie, Munich, Ger. 2. Micro FIAT O 230, Frames 4856-5740, abstracts

PB 96870

Neill, J.

Low temperature gas separation. Pt. I. Details of plant examined. Pt. II. Summary of information obtained at the various plants. Jun 1948. 175p photos, (6 fold diagrs), tables Mi $6.50 Ph $22.50

This report describes features of technical and engineering design and gives operational data on German gas separation plants of the Linde, Messer, and Claude types. Particulars of the targets visited are given and the information obtained about individual plant elementsand process steps is compared, with particular reference to air separation and hydrogen recovery processes. In the former case some notes on large scale application of oxygen are given in an appendix. In the latter, the important cases of recovery of methane and, especially, of ethylene as by-products of the hydrogen

production are dealt with. An index, bibliography, and flowsheets are included.

PB 94848s19

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Acetaldehyde distillation. Print no. 3c. Dec 1945. 3p drawing only Mi $1.25 Ph $1.25

Supplement 19 to PB 94848

This report may not reproduce well

I. Acetaldehyde—Distillation—Germany

PB 94848s38

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Cleavage of tetrachloroethane; flowsheet. Print no. 48b. Jan 1946. 2p drawing only Mi $1.25 Ph $1.25

Supplement 38 to PB 94848

This report may not reproduce well

I. Ethane, Tetrachloro—Production—Germany

PB 94848s3

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Discontinuous and continuous anhydride distillation. Flowsheets. Prints 6a and 6b. Dec 1945. 7p drawing only Mi $1.25 Ph $1.25

Legends in English

Supplement 3 to PB 94848

This report may not reproduce well

I. Anhydrides—Production—Germany

PB 94848s12

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Doppelgasofen für unterdruckanlage. (Double gas furnace for a vacuum installation. Print 1611). Dec 1937. 24p drawings only Mi $2.00 Ph $3.75

Legends in German

Supplement 12 to PB 94848

This report may not reproduce well

I. Furnaces, Gas—Germany

PB 94848s16

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Dry C_2H_2 generation. Print 2b. Jan 1946. 3p drawing only Mi $1.25 Ph $1.25

Supplement 16 to PB 94848

This report may not reproduce well

I. Acetylene—Production—Germany

PB 94848s37

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Drying of acetylene gas; flowsheet. Print no. 48a. Jan 1946. 3p drawing only Mi $1.25 Ph $1.25

Supplement 37 to PB 94848

This report may not reproduce well

PB 94848s2

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Einbau der heizschlangen in den gasoxen (doppelofen). Installation of heating coils in the pair furnace. Print no. 1548). Oct 1937. 12p drawing only Mi $1.75 Ph $2.50

Legends in German

Supplement 2 to PB 94848

This report may not reproduce well

I. Furnaces, Gas—Germany 2. Coils, Heating—Germany

PB 94848s6

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Erwerterte flanschausführungen für Heizschlangen NW 80.100. Ubersteigrohre NW 80.100.125. (Extended flange arrangement for heating coils and overflow tubes. Print no. 2157). Feb 1940. 21p drawing only Mi $2.00 Ph $3.75

Legends in German

Supplement 6 to PB 94848

This report may not reproduce well

I. Coils, Heating—Germany 2. Tubes, Overflow—Germany

PB 94848s23

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Gaswascher 2300^5. (Gas scrubber. Print no. 1036). Mar 1941. 21p drawing only Mi $2.00 Ph $3.75

Legends in German

Supplement 23 to PB 94848

This report may not reproduce well

I. Scrubbers, Gas—Germany

PB 94848s27

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Glocke aus gusseisen. (Cast iron bell. Print no. 1327). Oct 1937. 8p drawing only Mi $1.25 Ph $1.25

Legends in German

Supplement 27 to PB 94848

This report may not reproduce well

I. Bells—Germany

PB 94848s29

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Glockenboden 1500° aus granger B. (Cast iron bell bottom (for fractionating column). Jul 1937. 21p drawing only Mi $2.00 Ph $3.75

Legends in German

Supplement 29 to PB 94848

This report may not reproduce well

I. Tubes—Design—Germany

PB 94848s36

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Glockenboden (Cu). (Bell bottom (for fractionating column). Print no. 301)). Feb 1934. 12p drawing only Mi $1.75 Ph $2.50

Legends in German

Supplement 36 to PB 94848

This report may not reproduce well

PB 94848s35

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Glockenbodenkolonne mit füllkorperkolonne. (Bell bottom fractionating column, with filling column. Print no. 300). Feb 1934. 20p drawing only Mi $1.75 Ph $2.50

Legends in German

Supplement 35 to PB 94848

This report may not reproduce well

1. Tubes—Assembly—Germany

PB 94848s28

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Glockenhalter zur glocke. (Bell support. Print no. 1328a). n.d. 1p drawing Mi $1.25 Ph $1.25

Legends in German

Supplement 28 to PB 94848

This report may not reproduce well

1. Bells—Germany

PB 94848s8

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Heizschlange II NW 100. (Heating coil II NW 100. Print no. 2496). Feb 1943. 2ip drawing only Mi $2.00 Ph $3.75

Legends in German

Supplement 8 to PB 94848

This report may not reproduce well

PB 94848s7

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Heizschlange III NW 100; 10.5m^2 fier BON-ofen (Heating coil III NW 100, for BON furnace. Print no. 2107). Nov 1939 18p drawing only Mi $1.75 Ph $2.50

Legends in German

Supplement 7 to PB 94848

This report may not reproduce well

1. Coils, Heating—Germany

PB 94848s21

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Hg mud utilization. Print 3e. Dec 1945. 3p drawing only Mi $1.25 Ph $1.25

Supplement 21 to PB 94848

This report may not reproduce well

PB 94848s20

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

HgO electrolysis. Production. Print 3d. Jan 1946. 3p drawing only Mi $1.25 Ph $1.25

Supplement 20 to PB 94848

This report may not reproduce well

1. Mercury oxides—Production—Germany

PB 94848s5

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Krümmer und äste für VA-Fe—liebigkühler mit neuer flanschausführung. (Coil arrangement for Liebig condenser. Print 2232). Jun 1940. 2ip drawing only Mi $2.00 Ph $3.75

Legends in German

Supplement 5 to PB 94848

This report may not reproduce well

1. Condensers—Design—Germany 2. Coils—Manufacture—Germany

PB 94848s4

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Kuhllorfungen für nördl azolborm. (Cooling system for pyrrole plant (North column). Print no. 637). Jun 1944. 18p drawing only Mi $1.75 Ph $2.50

Legends in German

Supplement 4 to PB 94848

This report may not reproduce well

1. Pyrrole—Production—Germany

PB 94848s18

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Manufacture of acetaldehyde including waste gas utilization. 3 acetaldehyde systems 7500 liters; 1 system 18000 liters, and 1 waste gas system. Print no. 3b. Dec 1943. 4p drawing only Mi $1.25 Ph $1.25

Supplement 18 to PB 94848

This report may not reproduce well

1. Acetaldehyde—Production—Germany

PB 94848s33

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Manufacture of acetone. Print no. 10. Dec 1945. 3p drawing only Mi $1.25 Ph $1.25

Supplement 33 to PB 94848

This report may not reproduce well

1. Acetone—Production—Germany

PB 94848s31

Wacker, Alexander Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Manufacture of butylic acetate, 180 tons I month production. Print no. 23. Dec 1945. 3p Mi $1.25 Ph $1.25

Supplement 31 to PB 94848
This report may not reproduce well
I. Acetic acid, Butyl ester—Production—Germany

PB 94848s30

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.
Manufacture of ethyl acetate; flowsheet. Print no. 30). Dec 1945. 3p drawing only Mi $1.25 Ph $1.25
Supplement 30 to PB 94848
This report may not reproduce well
I. Acetic acid, Ethyl ester—Production—Germany

PB 94848s39

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.
Manufacture of vinyl chloride; flowsheet. Print no. 48c. Dec 1945. 4p drawing only Mi $1.25 Ph $1.25
Supplement 39 to PB 94848
This report may not reproduce well
I. Vinyl chloride—Production—Germany

PB 94848s32

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.
Manufacture of triacetine. Print no. 41. Dec 1945. 3p drawing only Mi $1.25 Ph $1.25
Supplement 32 to PB 94848
This report may not reproduce well
I. Triacetine—Production—Germany

PB 94848s17

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.
Purification of acetylene. Print no. 3a. Dec 1945. 3p drawing only Mi $1.25 Ph $1.25
Supplement 17 to PB 94848
This report may not reproduce well

PB 94848s43

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.
Reaktionsofen für die 200 mot-analage. (Furnace (for vinnol production). Print 260)). Mar 1943. 28p drawing only Mi $2.00 Ph $3.75
Legends in German
Supplement 43 to PB 94848
This report may not reproduce well
I. Vinnol (Trade name)

PB 94848s34

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.
Reaktions-Apparat 400 l. (400 l reaction tower. Print 326). Sep 1934. 12p Mi $1.75 Ph $2.50

—62278

Legends in German
Supplement 34 to PB 94848
This report may not reproduce well
I. Laboratories, Chemical—Instruments and apparatus—Germany

PB 94848s25

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.
Schem der hydroldruck distillation. (Hydrol pressure distillation; flowsheet. Print no. 942). Nov 1939. 12p drawing only Mi $1.75 Ph $2.50
Legends in German
Supplement 25 to PB 94848
This report may not reproduce well
I. Benzohydrol, Tetramethyldiamino—Production—Germany

PB 94848s40

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.
Schema der neuen acetylentrocknung. (Acetylene drying process. Print 12a). Jun 1944. 12p drawing only Mi $1.75 Ph $2.50
Legends in German
Supplement 40 to PB 94848
This report may not reproduce well
I. Acetylene—Drying—Germany

PB 94848s41

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.
Schema der spalt-analage (400 tons/month). (Flow sheet for fractionating column (100 tons/month). Print no. 198)). Jan 1942. 8p drawing only Mi $1.25 Ph $1.25
Legends in German
Supplement 41 to PB 94848
This report may not reproduce well
I. Tubes—Assembly—Germany

PB 94848s

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.
Schemor für azolanlage. (Flowsheet for pyrrole plant. Print 5816). Oct 1943. 10p drawing only Mi $1.25 Ph $1.25
Legends in German
This report may not reproduce well

PB 94848s10

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.
Sicromalschange II 8^5m^2. (Sicromal coil II for gas furnace. Print no. 1244). Apr 1936. 12p drawing only Mi $1.75 Ph $2.50
Legends in German
Supplement to PB 94848
This report may not reproduce well

PB 94848s9

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Sicromalschange III 8^5m^2. (Sicromal coil III for gas furnace. Print 1245). Apr 1936. 12p drawing only Mi $1.75 Ph $2.50

Legends in German

Supplement 9 to PB 94848

This report may not reproduce well

PB 94848s15

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Spaltanlage schema für anhydridanlage Amsel 3 u 4. (Cracking equipment for Amsel 3 and 4 anhydride plant. Print 2459a). May 1943. 2lp drawing only Mi $2.00 Ph $3.75

Legends in German

Supplement 15 to PB 94848

This report may not reproduce well

PB 94848

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Turme für Azol-essg. (Distillation apparatus for pyrrole production. Print 535). Jan 1940. 17p drawing only Mi $1.75 Ph $2.50

Legends in German

This report may not reproduce well

I. Pyrrole—Production—Germany

PB 94848s22

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Umban der Hydrolanlage im cebände Al. (Reconstruction of hydrol plant in building Al. Print no. 1030b). Mar 1941. 18p drawing only Mi $1.75 Ph $2.50

Legends in German

Supplement 22 to PB 94848

This report may not reproduce well

I. Benzohydrol, Tetramethyldiamino—Production—Germany

PB 94848s13

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Umlaufwascher 780l eisen gummiert—Baulänge 5206 mm. (Rotary scrubber, 780 l capacity (Length 5206mm). Print no. 2228)). Jun 1940. 2lp drawing only Mi $1.75 Ph $2.50

Legends in German

Supplement 13 to PB 94848

This report may not reproduce well

I. Scrubbers, Rotary—Germany

PB 94848s11

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Berghausen, Ger.

Vorheiz schlange I 8.5 m^2 aus Sicromal 12-Rohr 79/89. (Sicromal preheating coil I. Print no. 1243). Apr 1936. 12p drawing only Mi $1.75 Ph $2.50

Legends in German

Supplement 11 to PB 94848

This report may not reproduce well

PB 94848s14

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

WA-Umlaufröhrenkühler $30m^2$ mit 2 teiligene mantel baulänge 37 mm. (WA condenser ($30m^2$) with two part jacket (length 3700 mm). Print 2226)). Jun 1940. 18p drawing only Mi $1.75 Ph $2.50

Legends in German

Supplement 14 to PB 94848

This report may not reproduce well

I. Condensers—Germany

PB 94848s26

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Zusammenstellung der hauptkolonne. (Main Column: Assembly. Print no. 952). Nov 1939. 24p drawings only Mi $2.00 Ph $3.75

Legends in German

Supplement 26 to PB 94848

This report may not reproduce well

I. Tubes—Design—Germany

PB 94848s24

Wacker, Alexander, Gesellschaft für Elektrochemische Industrie G.m.b.H., Burghausen, Ger.

Zweiteilige Hölzerne. (Two-part wooden tray. Print no. 1049). Nov 1941. 4p drawing only Mi $1.25 Ph $1.25

Legends in German

Supplement 24 to PB 94848

This report may not reproduce well

I. Trays, Wooden—Germany

Miscellaneous Chemicals

PB 95123

Ammoniawerk Merseburg G.m.b.H., Leuna, Ger.

Cubic volume of the catalyst chamber in the hydrogenation of Kogasin and mineral oil for the manufacture of Mersolat. 1944. 4f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95123s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Kogasin—Hydrogenation—Germany 2. Mineral oils—Hydrogenation—Germany 3. Mersolat (Trade name) 4. Micro BIOS FD 4074/47, Frames 1-3 5. Micro MOFP/Bag 3043, Frames 1-3

PB 95488

Ammoniawerk Merseburg G.m.b.H., Leuna, Ger.

"Zetko" exchange of information reports on synthetic chemical processes. 1940-1941. 37f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 95488s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Chemistry, Synthetic—Germany 2. Micro BIOS FD 4085/47, Frames 1-33 3. Micro BIOS DOC 2351/2247/5, Frames 1-33

PB 95598

France. Ministère de la Production

Miscellaneous chemical reports. 1935-1936, 1940, 1945. 640f (Text in German) Mi $9.00 Enl Pr $83.75

See PB 95598s for abstracts. 6p. Mi $1.25 Ph $1.25

1. Micro FIAT A 329, Frames 5610-6250

PB 95598

Gesellschaft für Teerverwertung m.b.H., Duisburg, Ger.

Processing of hard coal tar products. 1945. Frames 5610-5663 (Text in German) Enl Pr $8.75

1. Coal tar products—Preparation—Germany 2. Micro BIOS FD 3204/46, Frames 5610-5663 3. Micro FIAT A 329, Frames 5610-5663

PB 95598

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Determination of several organic gas equilibria based on spectroscopic data. 1935. Frames 5664-5722 (Text in German) Enl Pr $8.75

1. Gas equilibria—Germany 2. Micro BIOS FD 3336/46, Frames 5664-5722 3. Micro FIAT A 329, Frames 5664-5722

PB 95598

I. G. Farbenindustrie A. G., Leuna, Ger.

Properties of certain organic compounds. 1936. Frames 5723-5982 (Text in German) Enl Pr $35.00

1. Chemical compounds—Analysis—Germany 2. Micro BIOS FD 336/47, Frames 5723-5982 3. Micro FIAT A 329, Frames 5723-5982

PB 95598

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Index of constant properties of fatty acids C_6 to C_{20}, with relative literature references. 1940. Frames 5983-6250 (Text in German) Enl Pr $36.25

1. Fatty acids—Analysis—Germany 2. Micro BIOS FD 3338/46, Frames 5983-6250 3. Micro FIAT A 329, Frames 5983-6250

PB 96866

Heppenstall, F. and others.

I. G. Farbenindustrie, Leverkusen Bei Koln manufacture of sulphuric acid. n.d. 22p photos, (fold diagr), tables Mi $2.00 Ph $3.75

1. Gt. Brit. Ministry of Supply 2. I. G. Farbenindustrie A. G., Leverkusen, Ger. 3. Sulfuric acid—Production—Germany 4. BIOS FR 1633, Item 22

The report is divided into a description of the unit parts, capacity, and operation. A flow sheet, attached as appendix II, gives much of the information obtained. Appendix I consists of photographs (a) combined turntable tippler, (b) pyrites storage bins and handling plant.

PB 85016

Hückel, Walter and Seel, F.

Theoretical organic chemistry, Part I. 1948. 153p (Text in German) Mi $6.00 Ph $20.00 Mimeo! $3.00

1. Chemistry, Organic—Germany 2. U. S. Field Information Agency, Technical

PB 74067t7

I. G. Farbenindustrie A. G., Höchst, Ger.

Delustering and softening agent Soromin DM. Dec 1948. 3p tables Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $2.50

Translation 7 of PB 74067

1. Softening agents—Germany 2. Soromin DM (Trade name) 3. Micro FIAT CC 122, Frames 396-398, trans.

PB 74067t8

I. G. Farbenindustrie A. G., Höchst, Ger.

Waterproofing and sizing agent Persistol WS. Dec 1948. 5p tables Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $3.50

Translation 8 of PB 74067

1. Waterproofing agents—Germany 2. Persistol WS (Trade name) 3. Micro FIAT CC 122, Frames 403-406, trans.

PB 74067t5

I. G. Farbenindustrie A. G., Höchst, Ger.

Waterproofing agent Persistol KF. Dec 1948. 4p Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $2.50

Translation 5 of PB 74067

1. Waterproofing agents—Germany 2. Persistol KF (Trade name) 3. Micro FIAT CC 122, Frames 328-330, trans.

PB 74285s

I. G. Farbenindustrie A. G., Leuna, Ger.

Miscellaneous research reports. Abstracts. n. d. 4p Mi $1.25 Ph $1.25

1. Micro FIAT F 210, Frames 2814-3779, abstract 2. Micro BIOS FDX 110, abstract

PB 74893s

I. G. Farbenindustrie A. G., Leverkusen, Ger.

Miscellaneous items covering the fields of agricultural and industrial: inorganic and organic chemistry. Abstract. 1930-1944. 12p Mi $1.75 Ph $2.50

Supplement 1 to PB 74893

1. Micro FIAT 7, Frames 415-1280, abstract 2. Micro BIOS FDX 96, abstract

PB 74654s

I. G. Farbenindustrie A. G., Leverkusen, Ger.

Moth-proofing. n.d. 8p Mi $1.25 Ph $1.25

1. Mothproofing—Germany 2. Micro FIAT L 89, Frames 5699-6563, abstracts 3. Micro BIOS FDX 194, abstracts

PB 95236

I. G. Farbenindustrie A. G., Oppau, Ger.
Cracking of methane with production of acetone. The production of dry ice. Production of hydrogen by pressure conversion of carbon monoxide. 1945. 27f (Text in French) Mi $2.00 Enl Pr $5.00
See PB 95236s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Acetone—Production—Germany 2. Methane—Cracking—Germany 3. Carbon dioxide, Solid—Germany 4. Hydrogen—Production—Germany 5. Micro BIOS FD 1661/48, Frames 259-281

PB 74994s

I. G. Farbenindustrie A. G., Oppau, Ger.
Reports from the I. G. Research Laboratories, Oppau. Abstract. 1935-1937. 11p Mi $1.75 Ph $2.50
Supplement to PB 74994
1. Micro FIAT 34x, Frames 1005-1499, abstracts 2. Micro BIOS FDX 121, abstracts

PB 95150

I. G. Farbenindustrie A. G., Schkopau, Ger.
Card index relating to hydrocarbon chemistry. 1935-1943. 344f (Text in German) Mi $9.00 Enl Pr $45.00
See PB 95150s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Hydrocarbons—Germany 2. Micro BIOS FD 2107/47, Frames 1-344

PB 95789

Johnson, Kathleen.
German synthetic tanning agents. Oct 1948. 78p Mi $3.50 Ph $10.00
1. U. S. Quartermaster Corps. Military planning division. Research and development branch 2. Tanigans (Tanning agents) 3. Tanning agents, Synthetic—Preparation 4. Ferrigan P 5. Isocyanates 6. Blancorals 7. LETOR 2

PB 85022

Klemm, Wilhelm and others.
Inorganic chemistry, Part II. 1948. 183p (Text in German) Mi $6.75 Ph $23.75 Mimeo: $3.00
For part I see PB 95688
1. Chemistry, Inorganic—Germany 2. U. S. Field Information Agency, Technical

PB 85021

Kuhn, Richard and others.
Biochemistry, Part II. 1948. 244p (Text in German) Mi $9.00 Ph $31.25 Mimeo: $3.00
For part I see PB 85003
1. Biological chemistry—Research—Germany 2. U. S. Field Information Agency, Technical

PB 96860

Rhenania-Ossag Mineralölwerke A.G., Monheim, Ger.
Processing of bleaching earth. 1938-1946. 26f (Text in German or English) Mi $2.00 Enl Pr $5.00
See PB 96860s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Fuller's earth—Germany 2. Micro BIOS FD 690/47, Frames 1-26

PB 96854

Rhenania-Ossag, Hamburg, Ger.
Propane peroxides for the manufacture of hydrogen peroxide. 1942-1944. 56f (Text in German and Dutch) Mi $2.75 Enl Pr $8.75
See PB 96854s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Hydrogen peroxide—Production—Germany 2. Micro BIOS FD 2874/46, Items 91,98, Frames 602425-602430, 602595-602640

PB 74479s

Rohm & Hass A. G., Darmstadt, Ger.
Urea resins: Textile and tanning treatments. Acrylic resins and lacquers. Abstract. 1928-1945. 3p Mi $1.25 Ph $1.25
1. Micro FIAT I 287, Frames 2371-3097, abstract 2. Micro BIOS FDX 130, abstract

PB 74996t2

Schuetz, Franz
Production of alkyl ethers of nitrophenols. Aug 1948. 3p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $2.00
1. Ethers, Alkyl—Germany 2. Micro FIAT X 92, Frame 43, trans.

PB 95300

U. S. Air Force and Navy Dept.
Compound: Cleaning, washing machine (for aircraft metal parts). Air Force-Navy aeronautical bulletin. Sep 1948. 1p table Mi $1.25 Ph $1.25
1. Compounds, Cleaning 2. Washing machines—Cleaning compounds 3. Engines, Aircraft—Parts—Cleaning 4. AN AB 361 6. AN-C-174

PB 95268

U. S. Air Force and U. S. Navy Dept.
Polish: Aluminum. Air Force-Navy aeronautical specification. Sep 1948. 10p Mi $1.25 Ph $1.25
1. Aluminum polish 2. AN-P-88

PB 95047

U. S. Air Force.
Use of high-pressure air and nitrogen. Apr 1948. 2p Mi $1.25 Ph $1.25
1. Air, High pressure

PB 88840s29

Carlsmith, L. E.
Bubble cap and vapor riser. (Messer). May 1947. 1p drawing only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 29 to PB 88840
This report may not reproduce well
I. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 29

PB 88840s39

Carlsmith, L. E.
Coil bundle, heat exchanger no I, Rauxel plant. (Messer). May 1947. 8p drawing only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 39 to PB 88840
This report may not reproduce well
I. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 39

PB 88840s41

Carlsmith, L. E.
Coil bundle for heat exchanger no II, Rauxel plant. (Messer). May 1947. 16p drawing only Mi $1.75 Ph $2.50
Legends in German and English
Supplement 41 to PB 88840
This report may not reproduce well
I. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 41

PB 88840s42

Carlsmith, L. E.
Coil layout for heat exchanger no II, Rauxel plant. (Messer). May 1947. 16p drawing only Mi $1.75 Ph $2.50
Text in German and English
Supplement 42 to PB 88840
This report may not reproduce well
I. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 42

PB 88840s26

Carlsmith, L. E.
Distillation: 19 plates Toulouse plant. (Messer). May 1947. 8p Mi $1.25 Ph $1.25
Legends in German and English
Supplement 26 to PB 88840
This report may not reproduce well
I. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 26

PB 88840s43

Carlsmith, L. E.
Distillation column: Exterior assembly, Rauxel plant. (Messer). May 1947. 16p drawing only Mi $1.75 Ph $2.50
Supplement 43 to PB 88840
This report may not reproduce well
I. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 43

PB 88840s44

Carlsmith, L. E.
Distillation column: Interior assembly, Rauxel plant. (Messer). May 1947. 16p drawing only Mi $1.75 Ph $2.50
Legends in German and English
Supplement 44 to PB 88840
This report may not reproduce well
I. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 44

PB 88840s45

Carlsmith, L. E.
Distillation column: Plate assembly. (Messer). May 1947. 16p drawing only Mi $1.75 Ph $2.50
Legends in German and English
Supplement 45 to PB 88840
This report may not reproduce well
I. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 45

PB 88840s27

Carlsmith, L. E.
Distillation column: 30 plates, Toulouse plant. (Messer). May 1947. 8p drawing only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 27 to PB 88840
This report may not reproduce well
I. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 27

PB 88840s28

Carlsmith, L. E.
Drilling pattern for plates of distillation column: Toulouse plant. (Messer). May 1947. 18p drawing only Mi $1.75 Ph $2.50
Legends in German and English
Supplement 28 to PB 88840
This report may not reproduce well
I. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 28

PB 88840s

Carlsmith, L. E.
Equilibrium diagram for O_2- N_2-Ar. (Linde). May 1947. 1p drawing only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 1 to PB 88840
This report may not reproduce well
I. Gesellschaft für Linde's Eismaschinen A. G., Munich, Ger. 2. FIAT FR 120, Supp. 1

PB 88840s2

Carlsmith, L. E.
Equilibrium diagram for O_2-N_2Ar. (Linde). May 1947. 8p drawing only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 2 to PB 88840

This report may not reproduce well
1. Gesellschaft für Linde's Eismaschinen A. G., Munich, Ger. 2. FIAT FR 1120, Supp. 2

PB 88840s3

Carlsmith, L. E.
Equilibrium diagram for O2-N2-Ar. (Linde). May 1947. 8p drawing only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 3 to PB 88840
This report may not reproduce well
1. Gesellschaft für Linde's Eismaschinen A. G., Munich, Ger. 2. FIAT FR 1120, Supp. 3

PB 88840s32

Carlsmith, L. E.
Evaporation coil. (Messer). May 1947. 16p drawing only Mi $1.75 Ph $2.50
Legends in German and English
Supplement 32 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 32

PB 88840s35

Carlsmith, L. E.
Expansion valve and stuffing box. (Messer). May 1947. 16p drawing only Mi $1.75 Ph $2.50
Legends in German and English
Supplement 35 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 35

PB 88840s21

Carlsmith, L. E.
Flow diagram for plant to produce oxygen with low pressure air only. (Messer). May 1947. 2p drawing only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 21 to PB 8840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 21

PB 88840s24

Carlsmith, L. E.
Flow sheet for Messer oxygen unit-toulouse. (Messer). May 1947. 16p drawing only Mi $1.75 Ph $2.50
Legends in French and English
Supplement 24 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 24

PB 88840s18

Carlsmith, L. E.
Heat content-concentration diagram for mixtures of oxygen and nitrogen. (Kirschbaum). May 1947. 3p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 18 to PB 88840
This report may not reproduce well
1. Karlsruhe. Technische Hochschule 2. FIAT FR 1120, Supp. 18

PB 88840s7

Carlsmith, L. E.
Heat content-entropy diagram for 1 kg. of air. (Linde). May 1947. 4p diagr only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 7 to PB 88840
This report may not reproduce well
1. Gesellschaft für Linde's Eismaschinen A. G., Munich, Ger. 2. FIAT FR 1120, Supp. 7

PB 88840s4

Carlsmith, L. E.
Heat content-temperature diagram for air. (Linde). May 1947. 8p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 4 to PB 88840
This report may not reproduce well
1. Gesellschaft für Linde's Eismaschinen A. G., Munich, Ger. 2. FIAT FR 1120, Supp. 4

PB 88840s13

Carlsmith, L. E.
Heat content-temperature diagram for air. (Messer). May 1947. 8p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 13 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 13

PB 88840s16

Carlsmith, L. E.
Heat content-temperature diagram for carbon monoxide. (Messer). May 1947. 8p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 16 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 16

PB 88840s5

Carlsmith, L. E.
Heat content-temperature diagram for 1 Kg. air. (Linde). May 1947. 2p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 5 to PB 88840
This report may not reproduce well
1. Gesellschaft für Linde's Eismaschinen A. G., Munich, Ger. 2. FIAT FR 1120, Supp. 5

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PB 88840s17

Carlsmith, L. E.
Heat content-temperature diagram for methane. (Messer). May 1947. 4p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 17 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2 FIAT FR 1120, Supp. 17

PB 88840s6

Carlsmith, L. E.
Heat content-temperature diagram for nitrogen. (Linde). May 1947. 8p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 6 to PB 88840
This report may not reproduce well
1. Gesellschaft für Linde's Eismaschinen A. G., Munich, Ger. 2. FIAT FR 1120, Supp. 6

PB 88840s14

Carlsmith, L. E.
Heat content-temperature diagram for nitrogen. (Messer). May 1947. 8p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 14 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 14

PB 88840s15

Carlsmith, L. E.
Heat content-temperature diagram for oxygen. May 1947. 8p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 15 to PB 88840
This report may not reproduce well
1. International Institute of Refrigeration, Paris 2. FIAT FR 1120, Supp. 15

PB 88840s38

Carlsmith, L. E.
Heat exchanger-assembly for air, no I, Rauzel plant. (Messer). May 1947. 16p drawing only Mi $1.75 Ph $2.50
Legends in German and English
Supplement 38 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 38

PB 88840s40

Carlsmith, L. E.
Heat exchanger no II, Rauxel plant. (Messer). May 1947. 16p drawing only Mi $1.75 Ph $2.50
Legends in German and English
Supplement 40 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 40

PB 88840s23

Carlsmith, L. E.
Linde-Frankl oxygen unit. (I.G.F.). May 1947. 4p drawing only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 23 to PB 88840
This report may not reproduce well
1. Gesellschaft für Linde's Eismaschinen A. G., Munich, Ger. 2. FIAT FR 1120, Supp. 23

PB 88840s31

Carlsmith, L. E.
Lower tube sheet for main condenser, Toulouse plant. (Messer). May 1947. 8p drawing only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 31 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 31

PB 88840s30

Carlsmith, L. E.
Main condenser; Toulouse plant. (Messer). May 1947. 16p drawing only Mi $1.75 Ph $2.50
Legends in German and English
Supplement 30 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 30

PB 88840s34

Carlsmith, L. E.
Nitrogen heat exchanger, Toulouse plant. (Messer). May 1947. 16p drawing only Mi $1.75 Ph $2.50
Legends in German and English
Supplement 34 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 34

PB 88840s36

Carlsmith, L. E.
Nitrogen valve. (Messer). May 1947. 8p drawing only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 36 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 36

PB 88840s33

Carlsmith, L. E.
Oxygen vaporization coil, Toulouse plant. (Messer). May 1947. 8p drawing only Mi $1.25 Ph $1.25
Legends in German and English

Supplement 33 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 33

PB 88840s48

Carlsmith, L. E.
Plant for production of gaseous oxygen—medium pressure. (Messer). May 1947. 2p Mi $1.25 Ph $1.25
Legends in German
Supplement 48 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 48

PB 88840s49

Carlsmith, L. E.
Six-stage gas compressor: Third stage valves. (Demag). May 1947. 12p drawing only Mi $1.75 Ph $2.50
Supplement 49 to PB 88840
This report may not reproduce well
1. Demag A. G., Duisburg, Ger. 2. FIAT FR 1120, Supp. 49

PB 88840s50

Carlsmith, L. E.
Six-stage gas compressor: Two crank shafts. Fifth stage valves. (Demag). May 1947. 8p drawing only Mi $1.25 Ph $1.25
Supplement 50 to PB 88840
This report may not reproduce well
1. Demag A. G., Duisburg, Ger. 2. FIAT FR 1120, Supp. 50

PB 88840s8

Carlsmith, L. E.
Temperature-entropy diagram for air. (Linde). May 1947. 8p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 8 to PB 88840
This report may not reproduce well
1. Gesellschaft für Linde's Eismaschinen A. G., Munich, Ger. 2. FIAT FR 1120, Supp. 8

PB 88840s10

Carlsmith, L. E.
Temperature-entropy diagram for air. (Messer). May 1947. 8p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 10 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 10

PB 88840s12

Carlsmith, L. E.
Temperature-entropy diagram for methane. (Messer). May 1947. 8p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 12 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 12

PB 88840s11

Carlsmith, L. E.
Temperature-entropy diagram for nitrogen. (Messer). May 1947. 8p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 11 to PB 88840
This report may not reproduce well
1. Messer & Co., G.m.b.H., Frankfurt am Main, Ger. 2. FIAT FR 1120, Supp. 11

PB 88840s47

Carlsmith, L. E.
Upper (low pressure) distillation column for Linde Oxygen plant. (Linde). May 1947. 8p drawing only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 47 to PB 88840
This report may not reproduce well
1. Gesellschaft für Linde's Eismaschinen A. G., Munich, Ger. 2. FIAT FR 1120, Supp. 47.

PB 88840s9

Carlsmith, L. E.
Vapor pressure curves for very low pressures. (Linde). May 1947. 8p graph only Mi $1.25 Ph $1.25
Legends in German and English
Supplement 9 to PB 88840
This report may not reproduce well
1. Gesellschaft für Linde's Eismaschinen A. G., Munich, Ger. 2. FIAT FR 1120, Supp. 9

DETERIORATION STUDIES

PB 96949

U. S. Tropical Deterioration Administrative Committee.
Summary Progress Report. Mar 1945. 6p Mi $1.25 Ph $1.25
1. Tropical deterioration 2. TDIC 38

PB 96947

U. S. Tropical Deterioration Administrative Committee.
Summary Progress Report. Apr 1945. 8p Mi $1.25 Ph $1.25
1. Tropical deterioration 2. TDIC 43

PB 96946

U. S. Tropical Deterioration Administrative Committee.
Summary Progress Report. May 1945. 9p Mi $1.25 Ph $1.25
1. Tropical deterioration 2. TDIC 48

ELECTRICAL MACHINERY, EQUIPMENT, AND SUPPLIES

Electronics

PB 96532

Abe, H. and Kumagai, H.

On the frequency characteristics of galena rectifiers. Dec 1948. 4p graph Mi $1.25 Ph $1.25

Rectifiers, Contact—Japan 2. Galenite—Japan 3. Frequency measurements—Japan 4. Tokyo. Imperial University. Faculty of Science

PB 96033

Brunswig, J. and others.

Advantages and disadvantages of frequency and phase modulation in the light of the special requirements demanded by aviation, as well as its application to wireless navigation. 1942. 189p photos, graphs Mi $6.75 Ph $23.75

1. Radio navigation equipment—Germany 2. Frequency modulation—Research—Germany 3. Gt. Brit. Ministry of Supply 4. TRB/TIBT 2813, trans. 5. Micro GDC 10/6039T, trans.

PB 95271

Cady, W. M. and others.

Radar scanners and radomes. 1948. 507p illus, drawings, graphs Available from McGraw-Hill Book Company, Inc. 330 West 42nd Street, New York 18, N. Y. $7.00

1. Radar—Scanning 2. Radar—Domes 3. Radar, Airborne—Equipment 4. MIT Rad Lab. Ser. v. 26

PB 96278

Funktechnische monatshefte. (Wireless monthly). Nos. 1-12. 1940. Nos. 5-12. 1941. Nos. 1, 4-10. 1943.

Fernsehen und tonfilm. (Television and sound film). Nos. 1-12. 1940. Nos. 1-12. 1941. Nos. 1-12. 1942.

Telefunkenroehre. (Telefunken tube). Nos. 1-8, supp. 1. 1934-1936. 762f (Text in German) Mi $9.00 Enl Pr $102.25

1. Communications, Electrical—Periodicals—Germany 2. Micro FIAT E 129, Frames 9847-9999 and 1-610

PB 85017

Goubau, Georg and others.

Electronics, including fundamental emission phenomena, Part 1. 1948. 299p (Text in German) Mi $9.00 Ph $37.50 Mimeo: $3.00

1. Electronics—Germany 2. Oscillators—Germany 3. Instruments, Electronic—Germany 4. U. S. Field Information Agency, Technical

PB 95665

Koono, T.

Meteoric impact ionization observed on radar oscilloscopes. International Association of Terrestrial Magnetism and Electricity, Oslo Assembly, August 1948. Aug 1948. 5p tables Mi $1.25 Ph $1.25

1. Oscilloscopes, Radar

PB 74162s

Rother, Friedrich, Lauf, Ger.

Ceramic insulating materials with high electrical coefficients. 1945. 2p Mi $1.25 Ph $1.25

Abstract of Micro FIAT CC 162, Frames 1-9 (PB 74162)

1. Micro FIAT CC 162, Frames 1-9, abstract 2. Micro BIOS FDX 201, abstract

PB 97137

Schafer, T. H.

Detection of a signal by several observers. Jan 1949. 10p graphs, tables Mi $1.25 Ph $1.25

Study of observations indicated that significant increases in the percent of signals detected may be made by the addition of extra observers. Predictions give an upper limit to improvement, chiefly because of the effect of correlation. NELS R 101

PB 96226

Stütger, O.

Ultra short wave amplification by means of mirrors. Dec 1938. 7p photo, drawing, chart Mi $1.25 Ph $1.25

Legends in German

This report may not reproduce well

An investigation of the extent to which a new purely optical amplification system can be of value in the transmission of centimeter waves. ZWB FB 997, translation

PB 95405

Svensson, S. Ingvar.

Pulser and water load for high power magnetrons. 1948. 26p photos, diagrs, graphs Mi $2.00 Ph $3.75

1. Vacuum tubes, Magnetron—Modulation—Sweden 2. Electronic equipment—Research—Sweden 3. Acta polytechnica no. 22, 1948

PB 96017

Telefunken hausmitteilungen. (Telefunken company communications). Nos. 80-82. 1939.

Telefunken mitteilungen. (Telefunken communications). Nos. 83, 84, 86. 1940/1941.

Telefunken raehre. (Telefunken tubes). Nos. 15-17. 1939. Nos. 18-19/20. 1940/1941. Nos. 21/22-23. 1941. Nos. 24/25-26. 1942. 671f (Text in German) Mi $9.00 Enl Pr $88.75

1. Research—Periodicals—Germany 2. Micro FIAT E 75, Frames 2231-2901

PB 96293

Telefunken-roehre. (Telefunken tube). Nos. 27-29.

Telegraphen-, fernsprech-, funk-, und fernsehtechnik. (Telegraph, telephone, radio and television technique). Nos. 1-12. 1939. Nos. 1-12. 1940. Nos. 1-12. 1941. 686f (Text in German) Mi $9.00 Enl Pr $88.75

1. Communications, Electric—Periodicals—Germany 2. Micro FIAT E 76, Frames 2902-3588

PB 96323

Telegraphen-, fernsprech-, funk- und fernsehtechnik. (Telegraphy, telephone, radio and television practice). v. 31, Nos. 1-12. 1942. v. 32, Nos. 1-9, 11-12. 1943. v. 33, Nos. 1-8. 1944. 518f (Text in German) Mi $9.00 Enl Pr $67.50

1. Telegraphy—Periodicals—Germany 2. Telephones—Periodicals—Germany 3. Radios—Periodicals—Germany 4. Television—Periodicals—Germany 5. Micro FIAT E 77, Frames 3589-4107

PB 95404

Tomner, J. Sigvard A.

Experimental development of traveling-wave tubes. 1948. 21p photos, drawing, graphs Mi $2.00 Ph $3.75

1. Tubes, Electronic—Sweden 2. Electronic equipment—Research—Sweden 3. Acta polytechnica no. 21, 1948

PB 95060

U. S. Air Force.

Fairchild: Modification of inverter control circuit—C-82A. Apr 1948. 5p drawings, tables Mi $1.25 Ph $1.25

1. Inverters

PB 96027

U. S. Air Force and U. S. Navy Dept.

Inverter—Class A 750 volt ampere—three phase. Dec 1948. 1p drawing Mi $1.25 Ph $1.25

1. Inverters 2. AN 3534

PB 96028

U. S. Air Force and U. S. Navy Dept.

Inverter—Class C 5000 volt ampere—single phase. Dec 1948. 1p drawings Mi $1.25 Ph $1.25

1. Inverters 2. AN 3530

PB 94960

U. S. Camp Evans Signal Laboratory.

Breitbandanpassung verschiedener 1/2 dipole mittels zweier homogener leitungs stucke. (Wideband matching of various half-wave dipoles by means of two homogeneous conductor sections). n.d. 20p drawing, graphs Mi $1.75 Ph $2.50

Legends in German and English

A description is given of a matching four-pole, consisting of two homogeneous conductor sections, which makes possible a wide-band matching of antenna systems, equipped with a fed half-wave dipole, to a symmetrical or unsymmetrical feeding circuit having a 60-ohm characteristic impedance. SIG IS T 159

PB 81238

U. S. Bureau of Ships.

Description and operating instructions for Fu MO 61 (Seetakt) submarine radar, operating instructions for "Naxos" Fu MB7 search receiver (Navy) and Fu G 224 airborne radar. 1943-1944. 90f (Text in German) Mi $3.75 Enl Pr $12.50

1. Radar, Marine—Equipment—Germany 2. FU MO 61 (Submarine radar) 3. Fu MB7 (Radar receiver) 4. Fu G 224 (Airborne radar) 5. Micro NAVSHIPS E 168-46—Frames unnumbered 6. Micro NAVSHIPS E 173-46—Frames unnumbered 7. Micro NAVSHIPS E 178-46—Frames unnumbered 8. Micro NAVSHIPS E 187-46—Frames unnumbered

PB 94010

U. S. Bureau of Ships.

Operating instructions for the "Naxos" Fu MB7 search receiver; "Der Kreisel". (The gyroscope) by Kurt Magnus, 1945 (145 pages). 1943-1945. 83f (Text in German) Mi $3.75 Enl Pr $12.50

1. Radar, Marine—Equipment—Germany 2. Gyroplanes—Germany 3. Fu MB7 (Radar receiver) 4. Micro NAVSHIPS S627-46 5. Micro NAVSHIPS E143-46

Miscellaneous

PB 95620

France. Ministère de la Production.

Miscellaneous German reports in the field of electrical engineering. 1941-1944. 607f (Text in German) Mi $9.00 Enl Pr $80.00

See PB 95620s for abstracts. 11p. Mi $1.75 Ph $2.50

1. Micro FIAT A 321, Frames 1174-1781

PB 95620

Elektroschweissung. (Electrowelding). v. 12, No. 12. 1941. Frames 1174-1205 (Text in German) Enl Pr $6.25

1. Welding, Electric—Periodicals—Germany 2. Micro BIOS FD 116/46, Frames 1174-1205 3. Micro FIAT A 321, Frames 1174-1205

PB 95620

Siemens & Schuckertwerke A. G., Berlin.

Large oil-cooled transformer. 1942. Frames 1206-1210 drawings only (Text in German) Enl Pr $2.50

1. Transformers, Oil cooled—Germany 2. Micro BIOS FD 720/47, Frames 1206-1210 3. Micro FIAT A 321, Frames 1206-1210

PB 95620

Kaiser Wilhelm Institut für Eisenforschung, Düsseldorf, Ger.

The influence of cold rolling and annealing on watt losses in the strip-stool of dynamos and transformers, by pomp and wuebbenhorst. 1941. Frames 1211-1225 (Text in German) Enl Pr $3.75

In its journal v. 23, No. 15. 1941

1. Steel—Rolling—Germany 2. Steel—Annealing—Germany 3. Micro BIOS FD 794/47, Frames 1211-1225 4. Micro FIAT A 321, Frames 1211-1225

PB 95620

Reports on electro-technical research made by Franz Unger-V.D.E., Braunschweig, Ger. (Extracts from periodicals). 1939-1942. Frames 1226-1303 (Text in German) Enl Pr $11.25

1. Engineering, Electric—Research—Germany 2. Generators, Electric—Germany 3. Motors, Electric—Germany 4. Micro BIOS FD 965/46, Frames 1226-1303 5. Micro FIAT A 321, Frames 1226-1303

PB 95620

Engel, F.V.A. and Oldenburg R.C., Mittelbare regler und regelanlagen. Grundlagen, aufbau und anwendung (Indirect acting regulators and regulating systems. Principles, construction and applications). 1944. Frames 1304-1564 (Text in German) Enl Pr $35.00

1. Regulators, Electro-dynamic—Germany 2. Micro BIOS FD 2378/46, Frames 1304-1564 3. Micro FIAT A 321, Frames 1304-1564

PB 95620

Oldenburg, R. C. and Sartorius, H.

Dynamik selbstätiger regelungen. (Dynamics of automatic controlling systems). 1944. Frames 1565-1709 (Text in German) Enl Pr $20.00

1. Regulators, Electro-dynamic—Germany 2. Micro BIOS FD 2377/46, Frames 1565-1709 3. Micro FIAT A 321, Frames 1565-1709

PB 95620

Aachen Technische Hochschule, Aachen, Ger.

Universal integrating apparatus for differential equations. 1943. Frames 1710-1759 (Text in German) Enl Pr $7.50

1. Calculators—Germany 2. Micro BIOS FD 2485/46, Frames 1710-1759 3. Micro FIAT A 321, Frames 1710-1759 4. ZWB UM 723

PB 95620

Entwicklungsbericht daempfungskreisel LDK 1. (Development report on new aircraft gyro). 1941. Frames 1760-1781 (Text in German) Enl Pr $5.00

1. Gyros, Stable horizon—Germany 2. Instruments, Gyro—Germany 3. Micro BIOS FD 49/46, Frames 1760-1781 4. Micro FIAT A 321, Frames 1760-1781

PB 96534

Gardiner, H. W. B. and others.

Industrial electrical research in Germany. n. d. 177p photos, graphs, drawings, (fold drawing), table Mi $6.50 Ph $22.50

Parts of this report may not reproduce well

—82278

1. Electrical research—Germany 2. BIOS FR 1730, Item 31

PB 96659

Netherlands. Military Mission, Ministry of Economic Affairs.

Accumulatoren und primärelemente. (Batteries (Primary cells)) Interrogation of Prof. A. Esau n. d. 2p (Text in German) Mi $1.25 Ph $1.25

Report number 14

1. Cells, Primary—Germany

PB 96654

Netherlands. Ministry of Economic Affairs.

Oscillator quartz crystals: Interrogation of Dr. J. H. Gisolf. Feb 1947. 8p Mi $1.25 Ph $1.25

Report number 4

This report will not reproduce well

1. Oscillators, Crystal—Germany

PB 73415s2

Siemens-Schuckertwerke A. G., Berlin.

Electrical control installations, electrical make-and-break contacts and use of aluminum in place of copper. 1938-1941. 3p Mi $1.25 Ph $1.25

Supplement 2 to PB 73415

1. Micro FIAT J 233, Frames 6690-6811, abstract

PB 95299

U. S. Air Force and U. S. Navy Dept.

Receptacle: Plug and cable assembly; external power, 115/200 volt 3 phase. Air Force-Navy aeronautical specification. Sep 1948. 8p Mi $1.25 Ph $1.25

1. Plugs—Packaging 2. Cables, Aircraft—Packaging 3. AN-R-28

PB 95635

U. S. Air Force and U. S. Navy Dept.

Ring: Bonding, electrical connector. Air Force-Navy aeronautical standard. Oct 1948. 1p drawing Mi $1.25 Ph $1.25

1. Connectors, Electric 2. AN 3111

PB 96689

U. S. Housing and Home Finance Agency.

HHFA technical bulletin no. 7. Aspects of electrical installations in houses, by Jefferson D. Brooks, pt. I: Model bill for statute authorizing adoption of codes by reference: Individual sewage disposal systems, pt. I. Nov 1948. 47p drawings, Mi $2.50 Ph $6.25 graphs, tables Available from U. S. Housing and Home Finance Agency, Washington, D. C.

1. Brooks, Jefferson D. 2. Septic tanks 3. Codes, Building 4. Electric systems—Regulation 5. Sewage disposal 6. HHFA TB 7

PB 95547

France. Ministère de la Production.

Miscellaneous reports dealing mainly with foods. 1933-1946. 544f (Text in German and English) Mi $9.00 Enl Pr $71.25

See PB 95547s for abstracts. 39p. Mi $2.25 Ph $5.00

1. Food—Research—Germany 2. Micro FIAT A 320, Frames 527-1071

PB 95547

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Catalysts, higher hydrocarbons, synthetic fatty acids etc. 1939-1944. Frames 527-603 (Text in German) Enl Pr $11.25

1. Fatty acids, Synthetic—Production—Germany 2. Hydrocarbons—Production—Germany 3. Micro FIAT A 320, Frames 527-603 4. Micro BIOS FD 2782/46, Frames 527-603

PB 95547

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Calcium propionate as anti-mould for bread. 1943-1944. Frames 604-619 (Text in German) Enl Pr $3.75

1. Calcium propionate—Germany 2. Bread—Preservation—Germany 3. Micro FIAT A 320, Frames 604-619 4. Micro BIOS FD 2801/46, Frames 604-619

PB 95547

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Recycle butadiene from buna polymerization as a basis for new production. 1944. Frames 620-628 (Text in German) Enl Pr $2.50

1. Rubber, Buna—Polymerization—Germany 2. Butadiene—Germany 3. Micro FIAT A 320, Frames 620-628 4. Micro BIOS FD 2819/46, Frames 620-628

PB 95547

Nehring, Edward

Report and reprints of articles relating to packaging materials (tins) for food preserves. 1939-1945. Frames 629-677 (Text in German) Enl Pr $7.50

1. Food, Canned—Germany 2. Food—Packaging—Germany 3. Tin—Uses—Germany 4. Micro FIAT A 320, Frames 629-677 5. Micro BIOS FD 2852/46, Frames 629-677

PB 95547

Koeniger, W.

Rapid drying of vegetables and fruits and albuminous fresh goods. 1933-1945. Frames 677A-731 (Text in German and English) Enl Pr $8.75

See also BIOS FR 186, Item 22 (PB 19681)

1. Vegetables, Dehydrated—Germany 2. Fruit—Dehydration—Germany 3. Berlin. Technische Hochschule. Forschunginstitut für Kältetechnic und Trockentechnik 4. Micro FIAT A 320, Frames 677A-731 5. Micro BIOS FD 2853/46, Frames 677A-731

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PB 95547

Schuettauf, A.

Speisefett aus kohle. (Edible fat from coal). 1942. Frames 732-738 (Text in German) Enl Pr $2.50

1. Fats, Edible—Germany 2. Coal—Derivatives—Germany 3. Micro FIAT A 320, Frames 732-738 4. Micro BIOS FD 1017/46, Frames 732-738

PB 95547

Milei Gesellschaft m.b.H., Stuttgart, Ger.

Zusamenhaengeude darstellung der entwicklung der neuen Milei verfahren. (Milei foods). 1942-1945. Frames 739-805 (Text in German) Enl Pr $10.00

See also BIOS FR 275, Item 22 (PB 23808)

1. Food—Preservation—Germany 2. Micro FIAT A 320, Frames 739-805 3. Micro BIOS FD 3198/46, Frames 739-805

PB 95547

I. G. Farbenindustrie A. G., Merseberg Ammonia Works, Merseberg, Ger.

Reaction of sulphonic acid chlorides with ammonia and its derivatives. 1941. Frames 806-842 (Text in German) Enl Pr $6.25

1. Sulfonic acids—Reaction products—Germany 2. Micro FIAT A 320, Frames 806-842 3. Micro BIOS FD 930/47, Frames 806-842

PB 95547

Spohn (Dr.)

Reports on mepasin sulphonate for use in soaps and washing medium. 1939. Frames 843-874 (Text in German) Enl Pr $6.25

1. Mepasin sulfonate—Uses—Germany 2. Soaps—Formulae—Germany 3. Micro FIAT A 320, Frames 843-874 4. Micro BIOS FD 932/47, Frames 843-874

PB 95547

I. G. Farbenindustrie A. G., Merseberg Ammonia Works, Merseberg, Ger.

Physico-chemical principles of extinction-spectrography, and the application of same in the long-wave-ultraviolet and in the visible spheres. 1942. Frames 875-912 (Text in German) Enl Pr $6.25

1. Food—Packaging—Germany 2. Ultraviolet radiation—Effects—Germany 3. Spectroscopy, Ultraviolet—Germany 4. Micro FIAT A 320, Frames 875-912 5. Micro BIOS FD 3322/46, Frames 875-912

PB 95547

Appel (Dr.) and others.

Research on fats obtained from fatty acids of an odd carbon atomic number. 1940. Frames 913-940 (Text in German) Enl Pr $5.00

1. Fats—Determination 2. Fatty acids—Derivatives 3. Carbon, Radioactive 4. I. G. Farbenindustrie A. G., Ludwigshafen, Ger. 5. Micro FIAT A 320, Frames 913-940 6. Micro BIOS FD 3340/46, Frames 913-940

PB 95547

I. G. Farbenindustrie A. G., Höchst, Ger.
Report on plant protection preparation etc. 1942-1943. Frames 941-960 (Text in German) Enl Pr $3.75
1. Plants, Protection of—Research—Germany 2. Micro FIAT A 320, Frames 941-960 3. Micro BIOS FD 3444/46, Frames 941-960

PB 95547

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Urea: its uses, plant and production. 1946. Frames 961-969 (Text in German or English) Enl Pr $2.50
1. Urea—Production—Germany 2. Micro FIAT A 320, Frames 961-969 3. Micro BIOS FD 198/47, Frames 961-969

PB 95547

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Reduction of starch to annular poly-saccharides. 1945. Frames 970-972 (Text in German) Enl Pr $2.50
1. Polysaccharides—Germany 2. Starch—Germany 3. Micro FIAT A 320, Frames 970-972 4. Micro BIOS FD 226/47, Frames 970-972

PB 95547

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Fodder from oxydized hydrocarbons (fuel residues). 1944. Frames 973-982 (Text in German) Enl Pr $2.50
1. Hydrocarbons—Oxidation—Germany 2. Feeding and feeding stuffs—Germany 3. Micro FIAT A 320, Frames 973-982 4. Micro BIOS FD 227/47, Frames 973-982

PB 95547

Bornhardt, Herbert.
Thesis on hydrogenating-cracking of fats, quantitative analysis of castor oil, pharmaceutical applications of whale fats. 1940. Frames 983-1012 (Text in German) Enl Pr $5.00
1. Fats—Examination—Germany 2. Castor oil—Germany 3. Whale oils—Germany 4. Micro FIAT A 320, Frames 983-1012 5. Micro BIOS FD 359/47, Frames 983-1012

PB 95547

Serge, H.
Substitute soup extract from albuminous substances. n.d. Frames 1013-1019 (Text in German) Enl Pr $2.50
See also BIOS FR 1067, Item 22 (PB 67452)
1. Soups 2. Versuchstation für Konservenindustrie, Brunswick, Ger. 3. Micro FIAT A 320, Frames 1013-1019 4. Micro BIOS FD 112/47, Frames 1013-1019

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PB 95547

Solo Feinfrost G.m.b.H., Wittenberg, Ger.
Agricultural research matters (Insecticides etc.) 1936-1945. Frames 1020-1171 (Text in German or English) Enl Pr $21.25
1. Agricultural research 2. Seeds—Germination 3. Fruits—Diseases and pests 4. Foods—Preservation 5. Insecticides—Production 6. Forests and forestry—Research 7. Food—Freezing 8. Refrigeration plants 9. Micro FIAT A 320, Frames 1020-1071 10. Micro BIOS FD 97/46, Frames 1020-1071

PB 96753

Supreme Commander for the Allied Powers. Natural Resources Section.
Fisheries cooperatives of Japan. Jan 1949. 24p Mi $2.00 Ph $3.75
1. Cooperatives—Japan 2. Fisheries, Cooperative—Japan 3. SCAP NRS PS 31

FUELS AND LUBRICANTS

PB 95626

France. Ministère de la Production.
Miscellaneous German material on fuels and lubricants. 1939-1943. 518f (Text in German) Mi $9.00 Enl Pr $67.50
No abstract available
1. Micro FIAT A 356, Frames 519-1034 2. Fuels—Production—Germany 3. Lubricants—Production—Germany

PB 95626

Deutsche Versuchsanstalt für Luftfahrtforschung. Institut für betriebstafforschung, Berlin.
Reports on fuels and lubricants. 1939-1943. Frames 519-930 (Text in German) Enl Pr $55.00
1. Fuels—Production—Germany 2. Lubricants—Production—Germany 3. Micro FIAT A 356, Frames 519-930

PB 95626

Vieweg, V. and Kluge, J.
Electromagnetic process to measure friction-force at the time of optimum lubrication. (Duplicate of PB 36515. Bib. v. 6, p. 566). 1941. Frames 931-960 (Text in German) Enl Pr $7.50
1. Micro FIAT A 356, Frames 931-960

PB 95626

Deutsche Kraftfahrtforschung.
Reports on fuels and lubricants. Technischer forschungsbericht no. 9. 1935. Frames 961-971 (Text in German) Enl Pr $2.50 No. 35. 1937. Frames 972-986 Enl Pr $3.75; No 83. 1940.

Frames 987-1000 Enl Pr $3.75; No. 93. 1941. Frames 1001-1016 Enl Pr $3.75

1. Fuels—Production—Germany 2. Lubricants—Production—Germany 3. Micro FIAT A 356, Frames 961-1016

PB 95626

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.

Investigation on oil test engine. 1943. Frames 1017-1034 (Text in German) Enl Pr $3.75

1. Engines, Oil—Germany 2. Micro FIAT A 356, Frames 1017-1034

PB 95124

I. G. Farbenindustrie A. G., Oppau, Ger.

Evaluation of various antiknock agents. 1927. 8f (Text in German) Mi $1.25 Enl Pr $2.50

No abstract available

1. Fuels, Anti-knock—Germany 2. Micro BIOS FD 2868/48, Frames 1-7

PB 90885

Mueller, Friedrich and others.

Interferometric determination of benzol in coal gas. 1940. 8f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90885s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Coal gas—Analysis—Germany 2. Benzene—Determination—Germany 3. Micro BIOS FD 1755/47, Frames 641-647

PB 12613s

Report on a meeting to exchange information on the operation of Fischer-Tropsch-Synthesis-Plants. n.d. 7p Mi $1.25 Ph $1.25

Supplement to PB 12613

1. Fuels, Synthetic—Germany 2. Fischer-Tropsch process 3. Fischer-Tropsch Plant, Courriers-Kuhlman Oil, Harnes, France

PB 70215s2

Ruhrchemie A. G., Oberhausen-Holten, Ger.

Research and development in the production of synthetic fuels and lubricants. Abstract. 1935-1944. 2p Mi $1.25 Ph $1.25

Supplement to PB 70215

1. Micro FIAT K 24, Frame 952, abstract

PB 70159s2

Ruhrchemie A. G., Oberhausen-Holten, Ger.

Research and experiments in the processing of synthetic and mineral oils and fats. Abstract. 1938-1946. 9p Mi $1.25 Ph $1.25

Supplement to PB 70159

1. Micro BIOS FDX 162, abstract 2. Micro FIAT L 5, Frames 1-576b, abstract

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PB 70214s2

Ruhrchemie A. G., Oberhausen-Holten, Ger.

Synthetic oil and petrol production. Abstract. 1935-1940. 8p Mi $1.25 Ph $1.25

Supplement 2 of PB 70214

1. Micro FIAT K 23, Frame 603, abstract

PB 70217s2

Ruhrchemie A. G., Oberhausen, Ger.

Synthetic oil production and carbonisation generally. Abstract. 1937-1946. 5p Mi $1.25 Ph $1.25

Supplement to PB 70217

1. Micro FIAT K 26, Frames 3890-4775, abstracts 2. Micro BIOS FDX 145, abstracts

PB 23750s

Sachsse (Dr.)

Removal of carbon black and dust from gases with the Oppauer shaft-filters. (Ammonia-Laboratory Oppau). Jul 1941. 27p drawings, graphs, tables Mi $2.00 Ph $3.75

Supplement to PB 23750

1. Dust removal—Germany 2. Gases—Purification—Germany 3. Filters—Germany 4. I. G. Farbenindustrie A. G., Oppau, Ger.

PB 94856

Schachenmayr, Mann & Cie., Salach, Ger.

Ueberfettete Schmieröle, besenders motorund Getriebeoele, und Verfahren zu deren Herstellung. (Lubricating oils, especially motor oils and gear lubricants with wool fats, etc. as additives; production methods). n.d. 6p (Text in German) Mi $1.25 Ph $1.25

1. Lubricating oils—Additives—Germany 2. Wool fat—Germany

PB 21183a

U. S. Air Force and U. S. Navy Dept.

Alcohol mixture (50% ethyl—50% methyl). Air Force-Navy aeronautical specification. Nov 1948. 2p Mi $1.25 Ph $1.25

Amendment 1 of PB 21183

PB 21381a2

U. S. Air Force and U. S. Navy Dept.

Fluid: Hydrocarbon standard test. Air Force-Navy aeronautical specification. Sep 1948. 2p table Mi $1.25

1. AN-F-42C-Amend. 2

PB 21403r

U. S. Air Force and U. S. Navy Dept.

Graphite: Lubricating. Air Force-Navy aeronautical specification. Sep 1948. 7p drawings Mi $1.25 Ph $1.25

PB 97110

Becker, J. A. and Christensen, H.

Thermistor bolometer and amplifier for infrared spectrometers. Jun 1944 43p photos, diagrs, graphs Mi $2.50 Ph $6.25

1. Bolometers 2. Amplifiers, Spectrometric 3. Spectrometers, Infrared 4. OSRD 3786

PB 96242

British Intelligence Objectives Sub-Committee. Halstead Exploiting Centre.

Description of flow-meter to evaluate maximum thrust and ratio of C—stoff to T—stoff. n.d. 6p tables Mi $1.25 Ph $1.25

1. Fuels, Liquid—Flow characteristics—Germany 2. Instruments, Measuring—Germany 3. Meters, Flow—Germany 4. T-stoff (Fuel supply unit) 5. C-stoff (Fuel supply unit) 6. BIOS HEC 235

PB 96252

British Intelligence Objectives Sub-Committee. Halstead Exploiting Centre.

Universal stand U. 6 for spectrographic analysis. n.d. 9p photos Mi $1.25 Ph $1.25

1. Spectrographic analysis—Instruments 2. BIOS HEC 13048

PB 96400

Brobeck, W. M.

Design study for a ten Bev magnetic accelerator. Aug 1947. 17p drawings (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

A ten billion volt proton synchrotron design using injection from Van de Graaf generators and betatron starting to reduce the required oscillator frequency range is described. Factors affecting the design of the iron core magnet, its power supply and associated apparatus are discussed. Cost is roughly estimated as fifteen to twenty million dollars. MDDC 1697

PB 95697

Curran, S. C. and Baker, W. R.

Photoelectric alpha particle detector. Nov 1944. 4p drawings (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Alpha rays—Detection 2. Detectors—Photoelectric 3. Atomic power—Research 4. MDDC 1296

PB 96235

Ellson, Douglas G. and Hill, Harris

The interaction of responses to step function stimuli: I. Opposed steps of constant amplitude. Nov 1948. 37p drawings Mi $2.25 Ph $5.00

1. Time interval methods 2. Recorders, Pattern 3. AAF TSEAA MR

—62278

PB 95863

Falk, David M.

Procedure test of gage, fuel quantity, capacitor type, and fuel flow autosyn system. Nov 1948. 18p Mi $1.75 Ph $2.50

1. Gages, Fuel 2. Autosyns—Parts 3. APGC Proj 34763-5

PB 95799

Galagher, J. and others.

Model 200 pulse counter. Oct 1946. 13p photos, drawings, graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn., Mimeo: $.10)

A complete general purpose electronic pulse counter is described which consists of an amplitude discriminator, scale-of-64, and register driver, and is suitable for use with pulse amplifiers in making nuclear measurements. MDDC 773

PB 95754

Glassford, H. A. and Macklin, R. L.

Tetramethyl lead filled geiger counters. Jul 1944. 10p photos, drawings, graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Geiger counters 2. Tetramethyl lead 3. Atomic power—Research 4. AECD 2003

PB 96498

Gt. Brit. Ministry of Supply.

Beschreibung und justierung des stereoplanigraphen. (Description and instructions for adjustment of the Zeiss-topograph). Aug 1943. 44p drawings, tables Mi $2.50 Ph $6.25

Legends in German

1. Stereoplanigraphs—Germany 2. Zeiss stereo—Topograph 3. Micro GDC 3A/219T, translation

PB 97013

Heidenwolf, Hermann

Verfahren zur mikroskopischen sichtbarmachung magnetischer Tonaufzeichnungen. (Arrangement for making magnetic sound recording visible for microscopic research). n.d. 8p photos (text in German and English) Mi $1.25 Ph $1.25

1. Sound—Measurements—Germany 2. Recorders, Magnetic—Germany 3. Spectra, Acoustic—Germany

PB 96385

Hull, D. E.

Rapid, precise microbalance technique. n.d. 8p tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Microbalance 2. Atomic power—Research 3. AECD 1816

PB 95225

I. G. Farbenindustrie A. G., Schkopau, Ger.

"Brabender" test instruments, including the "Brabender" moisture content recorder for testing plasticizers. 1944 30f (Text in German) Mi $2.00 Enl Pr $5.00

No abstract available

1. Instruments—Testing equipment—Germany 2. Recorders, Moisture—Germany 3. Plasticizers—Tests—Germany 4. Micro BIOS FD 2385/47, Frames not numbered

PB 95718

Monk, G. W.

Vacuum divider. Low pressure multiplier. n.d. 9p diagr, graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

An instrument utilizing a 5 liter per second diffusion pump is described which allows pressures in the range 0.01 to 5 microns to be measured on a Pirani, thermocouple, McLeod or any other gage ordinarily operating in the 9.5 to 50 micron range. MDDC 1464

PB 96146

Neipel, H. and Siemens & Halske

A new carbon-block accelerometer with damping. The carbon-block accelerometer. 1943 20p illus, diagrs Mi $1.75 Ph $2.50

Legends in German

1. Gt. Brit. Ministry of Supply 2. Accelerometers—Carbon-block—Germany 3. Micro GDC 3D/1T, translation

PB 95890

Quynn, John T.

Adjustable aperture for electron microscope, RCA type EMU. Apr 1948. 4p drawing Mi $1.25 Ph $1.25

1. Atomic power—Research 2. Microscopes, Electron

PB 96434

Stein, F. S. and Binns, J. E.

Mass spectrometer for leak detection. n.d. 10p drawings, table (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Mass spectrometers 2. Atomic power—Research 3. MDDC 1670

PB 96176

Thal, W.

Part I. The ferrometer: A new magnetic measuring instrument for soft iron. n.d. 12p photo, drawings, charts Mi $1.75 Ph $2.50

1. Gt. Brit. Ministry of Supply 2. Soft iron—Germany 3. Micro GDC 187T, parts 1, 2, translation

—62278

PB 96653

Todd, John and others.

Applied mathematical research in Germany, with particular reference to naval applications. n.d. 65p diagrs, tables Mi $3.00 Ph $8.75

CIOS Blacklist items, 1,29,9,25,2,4 Physical and Optical Instruments and devices

1. Mathematics, Applied—Germany 2. Instruments, Optical—Germany 3. BIOS FR 79, Item 1,29, 9,25,2,4

PB 95917

U. S. Air Force and U. S. Navy Dept.

Indicator; Temperature, electrical-resistance, single, - 50 to +50°C. Nov 1948. 15p Mi $1.75 Ph $2.50

1. Temperature—Indicators 2. Indicators, Electromagnetic 3. AN-I-50

PB 95894

U. S. Air Force and U. S. Navy Dept.

Indicator—temperature, thermocouple, chromel-alumel, single, 0° to 1000°C. Nov 1948 1p drawing Mi $1.25 Ph $1.25

1. Temperature—Indicators 2. AN 5793

PB 94976

U. S. Air Force.

Set: Services, art, instructional. Jun 1948 2p tables Mi $1.25 Ph $1.25

1. Instruments, Drawing 2. AAF TO 00-30-1149

PB 96237

U. S. Air Force and U. S. Navy Dept.

Terminal-thermocouple, chromel and alumel. Dec 1948. 1p drawings Mi $1.25 Ph $1.25

1. Thermocouples 2. AN 5548

PB 96944

Washington State College. Department of Physics.

Operating instructions for the WSC low level atmospheric sounding equipment. Jul 1944. 10p drawings Mi $1.25 Ph $1.25

1. Atmosphere—Sound absorption 2. WSC Atmospheric sounding equipment) 3. NDRC PDRC 647, Rept 8

PB 95902

(von) Wittern, Wolf-Wito and Oestreicher, Hans.

A special purpose pressure meter. Aug 1948. 10p drawings Mi $1.25 Ph $1.25

1. Suits, Pressure 2. Meters, Pressure 3. AAF TSEAA MR 696-116B

LEATHER AND LEATHER PRODUCTS

PB 96735

O'Flaherty, Fred and others.

Areas of quartermaster research in leather. n.d. 42p graphs Mi $2.50 Ph $6.25 Mimeo: $1.25

1. Cincinnati University, Tanners' Research Council Laboratory 2. Leather—Research 3. Leather—Water resistance 4. Leather—Wear resistance 5. Leather—Stability 6. QMC LSR I

LUMBER AND WOOD PRODUCTS

PB 95552

Carter, Roy M. and others.

Economies in seasoning. Aug 1948 72p graphs, drawings, tables, illus Mi $3.50 Ph $10,00

1. Kilns, Lumber drying 2. Lumber—Drying 3. Wood—Drying 4. Kilns—Construction 5. NWUC-23

PB 95495

Deutsche Gold- und Silberscheideanstalt, Bruchhausen, Ger.

Recovery of various wood distillation products. 1947. 28f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 95495s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Wood—Distillation products—Germany 2. Micro BIOS FD 4514/47, Frames 1-27

PB 93008

Graf, Otto

Comparative tests with wood binding staples. 1944. 18p Mi $1.75 Enl Pr $2.50

Published in "Die Bautechnik," 1944, nos. 5-8, pp 23-32; nos. 9-14, pp 47-52

No abstract available

1. Staples, Wood binding—Germany 2. Micro BIOS FD 460/46, p. 1-17

PB 96096

Heck, O. S.

Die bruchgefahr bei zweiachsig beanspruchtem holz. (The risk of breakage with double-axially stressed wood). Dec 1942. 22p diagrs, tables Mi $2.00 Ph $3.75

Legends in German

Parts of this report may not reproduce well

The well-known fracture theories do not apply to wood. A method of mathematically ascertaining the safety margin for wood under double axial stress is here proposed. For the important special case where a normal stress in one direction and one shearing stress occur, we have suggested general purpose curves for some kinds of wood used in aircraft construction, from which we can deduce the safety margin applicable to any particular case. Micro GDC 16/34T, translation

PB 37223t

Isensee (Herr) and Kesselkaul (Herr)

The mechanical strength of T. V. Bu laminated wood and T. V. Bu 20/2 multi-plywood. May 1940. 92p illus, graphs, fold tables Mi $4.25 Ph $12.50

Translation of PB 37223

Legends in German

1. Micro GDC 10/1126T, translation

PB 96109

Keylwerth, R.

Experiments on pin pressure in laminated wood, plywood and multiply-wood used in aircraft construction. 1944. 11p illus, diagrs, tables Mi $1.75 Ph $2.50

Legends in German

Measurements of pin pressure in bolted connections of wooden parts in laminated wood, plywood, and multiply-wood, for different directions of stress, were made to enable design standards to be set up. The test conditions assumed side-pressure in a hole by a 10 mm. stiff bolt, without strap friction or impediment to lateral spread. ZWB T62, V.11(1944) p. 41-47, translation.

PB 38270t

Kiich, V.

Zentrale für technischwissenschwissenschaftliches Bericht wesen über Luftfahrtforschung. (Tests on processed wood of different types). Dec 1934. 25p charts Mi $2.00 Ph $3.75

Translation of PB 38270

This report may not reproduce well

In the investigations described in the present paper processed woods of various types were tested to compare their strength, permanence of form under the influence of humidity, and bonding quality. ZWB FB 191

PB 60842t

Kollman (Herr) and others.

Wood in aircraft construction. Dec 1942. 168p illus, drawings, graphs, tables Mi $6.25 Ph $21.25

Translation of PB 60842

Legends in German

1. Micro GDC 10/6102T, translation

PB 96192

Messerschmitt A. G.

1. Material nomenclature for wooden aircraft components. 2. Strength values for wood. Dec 1942. 6p illus, tables Mi $1.25 Ph $1.25

Translation from the German

1. Micro GDC 15/251T, translation

PB 96875

Northeastern Wood Utilization Council, New Haven, Conn.

The chemistry and utilization of bark. (Report of conference at Cambridge, Mass., Sept. 1948). Jan 1949. 133p photos, tables Mi $5.50 Ph $17.50

1. Bark—Chemistry 2. Bark—Uses 3. Tanning agents 4. Wood—Industry 5. NWUC B 25

PB 66141

Peakes, L. V. and others.

Substitute woods for Port Orford white-cedar for storage battery separators. Apr 1945. 45p photos, graphs, tables Limited supply Mimeo $1.00; thereafter Mi $1.00 Ph $3.00 (Bib, V.5, p.672)

1. Wood—Treatment 2. Batteries, Storage—Wood separators

PB 38427t

Riechers, K.

Examination of the inter-action of Casein and Kaurit cold-setting glues. Aug 1935. 23p graphs, tables Mi $2.00 Ph $3.75

Translation of PB 38427

1. Micro GDC 10/763T, translation

PB 96211

Rother (Herr)

Investigation of different types of lignofol improved wood. Mar 1938. 12p graphs, table Mi $1.75 Ph $2.50

Legends in German

1. Gt. Brit. Ministry of Supply 2. Lignofol—Germany 3. Micro GDC 16/490T, translation

PB 95840

Schenck, Hubert G.

Natural resources section weekly summary no. 161. Nov 1948. 25p tables, graphs Mi $2.00 Ph $3.75

1. Lumber—Supply 2. Forests and forestry—Research 3. Fisheries 4. Agriculture 5. Supreme Commander for the Allied Powers. Natural Resources Section 6. SCAP NRS no. 159

PB 27088

Schrader, O. Harry, Jr.

Research and development in marine gluing technique at the Timber Structures, Inc. pilot plant, Seattle, Washington. Final report, Sep 1943—Nov 1945. Oct 1945. 53p photos., tables Limited supply mimeo $1.00; thereafter, Mi $2.00 Ph $4.00 (Bib. V.2, p.269)

1. Wood, Laminated 2. Gluing 3. WMC W-239

PB 95260

Stevens, W. C. and Turner, N.

Solid and laminated wood bending. 1948. 78p illus, drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.60

1. Wood—Bending 2. Woodworking—Equipment 3. Woodworking industry

PB 40145r

U. S. Army Air Forces.

Set: Maintenance, field, woodmill. Sep 1947. 4p tables Mi $1.25 Ph $1.25

1. AAF TO 00-30-325, rev.

—62278

PB 95631

Widell, Torsten

Thermal investigations into carbonization of wood. Royal Swedish Academy of Engineering Sciences, Proceedings Nr. 199, 1948. 39p graphs, tables Mi $2.25 Ph $5.00

1. Wood—Carbonization—Sweden 2. Royal Swedish Academy of Engineering Sciences

MACHINERY (EXCEPT ELECTRICAL)

PB 96505

Ackeret, J.

Auf dem wege zur gasturbine. (On the way to the gas turbine). Dec 1942. 2p Mi $1.25 Ph $1.25

Reprint from "Schriften der Deutschen Akademie der Luftfahrtforschung;" V. 7B, 1943, no. 3.

1. Turbines, Gas—Switzerland 2. Gt. Brit. Ministry of Supply 3. Micro GDC 10/10093t, translation

PB 96867

Bujnowski, A.

Industrial gas installations. n.d. 147p photos, drawings, diagrs, tables Mi $5.75 Ph $18.75

This document describes installations at 24 German plants including Hannesmannwerke Huckingen, Henkel et Cie, Düsselforf, Demag, Duisburg, Dortmunder Union, Dortmund, P. F. Peddinghaus, Gevelsberg, and others. A translation of extracts from Peddinghaus literature and abstracts of reports from the Gaswärme Institut are included. Other sections of the report cover radiant tube units, gas-fired space heaters, heating of salt baths, flue gas-fired space heaters for factories, measurements made on a gas-fired galvanizing plant with recirculation of the waste gases, and comparative measurements of two industrial furnaces with different brickwork. BIOS FR 1800, Item 31

PB 90847

Butter, Otto

Die sprengnietung. (Explosive riveting). 1938. 3f (Text in German) Mi $1.25 Enl Pr $2.50

See also Micro BIOS FD 1520/47 (PB 90546); FD 1518/47 (PB 90544); FD 1519/47 (PB 90545)

See PB 90847s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Riveting, Explosive—Germany 2. Micro BIOS FD 1722/47, Frames 1-3

PB 96540

Coates, John E. and others.

Method of working and polishing granite in Germany and other information as to machinery, tools and other materials used. Nov 1948. 7p Mi $1.25 Ph $1.25

1. Granite—Finishing—Germany 2. BIOS FR 1819, Item 22

PB 13822

Cover, Gerald M.

Supplementary investigation on increased blast furnace capacity. Progress report, Apr 1—Jul 1, 1944. Oct 1944. 20p Mi $.50 Ph $2.00 Limited supply mimeo $1.00; thereafter (Bib. V.1, p.1018)

1. Blast furnaces 2. WMC W-142

PB 96047

Daimler-Benz A. G., Manneheim, Ger.

Development of combustion chambers for the Daimler Benz 007 gas turbine. Jan 1944. 22p photos, drawings, graphs Mi $2.00 Ph $3.75

1. Turbines, Gas—Germany 2. Combustion chambers—Germany 3. Gt. Brit. Ministry of Supply 4. Micro GDC 10/4029T, translation 5. RTP/TIBT, translation

PB 81636s3

Dust extraction by means of multiclones. n.d. 2p tables Mi $1.25 Ph $1.25

Supplement 3 to PB 81636

1. Dust removel—Germany 2. BIOS FR 1426, Item 22, Supp. 3

PB 94855

Fickert & Winterling, A. G., Marktredwitz, Ger.

Räderkasten zur trennsäge. (Gear box for a glass cutting saw). n.d. 8p drawings only Mi $1.25 Ph $1.25

Legend in German

This report may not reproduce well

1. Gear boxes—Germany 2. Glass making machinery—Germany

PB 94854

Fickert & Winterling, A. G., Marktredwitz, Ger.

Verderarm mit Kegelradantrieb H.P.E.K^{750}. (Forward arm with bevel gear drive (for glass making machinery)). n.d. 8p drawings only Mi $1.25 Ph $1.25

Legends in German

This report may not reproduce well

1. Glass making machinery—Germany

PB 95625

France. Ministère de la Production.

Research reports covering tests of internal combustion engines, fuels, and lubricants including the development of test equipment. 1938-1944. 544f (Text in German) Mi $9.00 Enl Pr $71.25

See PB 95625s for abstracts. 3p. Mi $1.25 Ph $1.25

1. Engines, Internal combustion—Tests—Germany 2. Fuels—Tests—Germany 3. Lubricants—Tests—Germany 4. Micro FIAT A 355, Frames 1-518

PB 81636s

Geister (Dr.)

Dust-removal. Dec 1936. 12p tables Mi $1.75 Ph $2.50

Supplement to PB 81636

1. Dust removal—Germany 2. BIOS FR 1426, Item 22, Supp. 1

PB 96353

Goedkoop and Jonge, Poerink de

Dutch report on some German spring factories. May-Jun 1947. 5p Mi $1.25 Ph $1.25

1. Factories, Wire springs—Germany 2. Netherlands Military Mission. Technical Research 3. BIOS M 108

PB 70449s2

Horn, Guido, Maschinenfabrik Berlin.

High speed braiding machines. n.d. 2p Mi $1.25 Ph $1.25

Abstract of Micro FIAT CC 229, Frames 1-20 (PB 70449)

1. Micro FIAT CC 229, Frames 1-2, abstract

PB 4673s

I. G. Farbenindustrie A. G., Griesheim, Ger.

Gyratory mills—vibration machinery: Their application in industry and solutions to technical problems arising in their use. Dec 1945. 4p (Text in German and English) Mi $1.25 Ph $1.25

Supplement 1 to PB 4673

This report may not reproduce well

1. Micro FIAT G 37, Index 2. Micro FIAT G 38, Index

PB 90870

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Evaluation of the combustion equation. 1940 7f Mi $1.25 Enl Pr $2.50

Resumé of contents in English, French and Italian

See PB 90870s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Combustion—Problems— Germany 2. Micro BIOS FD 1743/47, Frames 508-512

PB 92512

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Materials for packings and jointings. 1943. 39f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 92512s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Packings— Germany 2. Joints— Germany 3. Micro BIOS FD 715/48, Frames 1-3

PB 22627s3

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Teller-Trogafen L 119. n.d. 15p drawing only Mi $1.75 Ph $2.50

Supplement 3 to PB 22627

Legends in German

This drawing may not reproduce well

1. Furnaces, Circular—Germany 2. FIAT MCF 147 3. FIAT FR 796 LD

PB 96077

Ingenieurbüro F. Faudi, Frankfurt am Main, Ger.

Drehschwingungswandler und dynamische schwungrader system Faudi—APIC. (Torsional vibration transmitter and dynamic flywheels on the Faudi—APIC system). 1937. 11p diagrs Mi $1.75 Ph $2.50

Legends in German

1. Gt. Brit. Ministry of Supply 2. Flywheels—Germany 3. Vibration, Torsional—Damping—Germany 4. Transmitters—Germany 5. Micro GDC 3E/104T, translation

PB 92525

Kayser, J. G., Nuremberg, Ger.

Drawings of special grinding machines "for grinding in the teeth of bifurcated rivet milling cutters and for grinding the cutters laterally." n.d. 969f Mi $9.00 Enl Pr $126.25

No abstract available

1. Machines, Grinding—Germany 2. Micro BIOS FD C 330-340, Frames 1-875

PB 95099

Köhler and Bovenkamp, Wuppertal, Ger.

Chain driving gear. 1940, 1942. 88f (Text in German) Mi $3.75 Enl Pr $12.50

See PB 95099s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Sprockets—Germany 2. Chains—Germany 3. Chain conveyors— Germany 4. Micro BIOS FD 1915/46, Frames 1-87 5. BIOS FR 640 LD, Frames 1-87

PB 90929

Krupp, Friedrich, A. G., Widia Fabrik, Berlin

Pressure sintering process. Widia tools and their uses. 1936-1946. 71f (Text in German) Mi $3.50 Enl Pr $11.25

See PB 90929s for abstracts. 3p. Mi $1.25 Ph $1.25

1. Sintering—Germany 2. Widia tools—Germany 3. Micro BIOS FD 1786/46, Frames 1-67

PB 91492

Krupp, Friedrich, Grusonwerk A. G., Magdeburg, Ger.

Symons-gyratory crusher. n.d. 16f (Text in German) Mi $1.75 Enl Pr $3.75

No abstract available

1. Crushers, Gyratory—Germany 2. Micro BIOS FD 1799/47, Frames 1-16

PB 70442s

Leitz, Gebrüder, Oberkochen, Ger.

Mortising machine. 1938. 2p Mi $1.25 Ph $1.25

Abstract of Micro FIAT AA 193, Frames 90554-90580 (PB 70442)

1. Micro FIAT AA 193, Frames 90554-90580, abstract

PB 38456t

Lindner, G.

The air consumption of direct fuel injection, spark-ignition, internal combustion engines, with or without supercharger, as a basis for the design of fuel governors. Aug 1935. 12p graphs, tables Mi $1.75 Ph $2.50

Translation of PB 38456

Legends in German

1. Micro GDC 10/774T, translation

PB 96135

Lutz, O.

The rotary piston principle as a new mechanical power transmitter. Mar 1939. 10p illus, diagrs Mi $1.25 Ph $1.25

Legends in German

1. Gt. Brit. Ministry of Supply 2. Pistons, Rotary— Germany 3. ZWB UM 569, translation 4. Micro GDC 10/5092T, translation

PB 96556

Meyer, A. J.

Report on the development of a dual power plant for portable sawmills. Dec 1948. 37p photos, drawings Mimeo: $1.00

1. Power plants, Dual 2. Sawmills, Portable 3. OTS IRDD 239-3

PB 96549

Netherlands Military Mission. Technical Research.

Dutch report on German accumulator factories. n.d. 11p photos Mi $1.75 Ph $2.50

Parts of this report will not reproduce well

1. Factories, Accumulator—Germany 2. BIOS M 111

PB 96541

Phillpotts, G. C. and others.

German carbon industry and hydraulic press manufacture. n.d. 13p Mi $1.75 Ph $2.50

1. Carbon—Industry— Germany 2. Presses, Hydraulic—Germany 3. BIOS FR 1823, Item 21,31

PB 73634s

Schmidt & Schaudt K. G., Stuttgart, Ger.

Printed instruction books for erecting and operating the firm's gear tooth and cylindrical grinders. 1938-1944. 2p Mi $1.25 Ph $1.25

Abstract of Micro FIAT CC 245, Frames 1-22 (PB 73634)

1. Micro FIAT CC 245, Frames 1-122, abstract

PB 81636s2

Several short reports on dust removal in multi-cyclone-units. 1942-1943. 2p Mi $1.25 Ph $1.25

Supplement 2 to PB 81636

1. Dust removal—Germany 2. BIOS FR 1426, Item 22, Supp. 2

—62278

PB 95107

Siegener Maschinenbau A. G., Siegen, Ger.
Chain driving gear. n.d. 21f Mi $2.00 Enl Pr $5.00
See PB 95107s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Sprockets— Germany 2. Chains— Germany 3. Micro BIOS FD 1919/46, Frames 1-20 4. BIOS FR 640 LD, Frames 1-20

PB 91491

Siemen und Hinsch m.b.H., Itzehoe, Ger.
"Sihi" pumps: Catalog. 1937. 94f (Text in German) Mi $4.25 Enl Pr $13.75
No abstract available
1. Pumps—Manufacture— Germany 2. Micro BIOS FD 1696/47, Frames 1-91

PB 95101

Steinmann & Co., G.m.b.H., Hagen, Ger.
Chain driving gear. 1937. 12f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 95101s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Chains—Germany 2. Micro BIOS FD 1918/46, Frames 1-11 3. BIOS FR 640 LD, Frames 1-11

PB 88718

U. S. Air Force.
Parts catalog for high pressure water pump type H. Sep 1947. 13p photos, drawings, tables Mi $1.75 Ph $2.50
1. Pumps, Water—Maintenance and repair 2. AAF TO 19-25A-37

PB 26637r3

U. S. Air Force and U. S. Navy Dept.
Pump—1 GPM at 1500 PSI power driven hydraulic. Dec 1948. 1p drawing Mi $1.25 Ph $1.25
Revision of PB 26637

PB 96533

Unwin, V. R. and others.
German hand tool industry, heavy edge tools. n.d. 69p photos, diagrs, drawings Mi $3.00 Ph $8.75
Part of this report may not reproduce well
1. Factories, Edge tool—Germany 2. Tools, Hand—Manufacture— Germany 3. BIOS FR 1628 (Section 7), Item 31

PB 90894

Wiegand, Wilhelm, Maschinenfabrik K. G., Merseburg, Ger.
Industrial steam operated equipment, cooling and evaporator plant. n.d. 45f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 90894s for abstracts. 3p. Mi $1.25 Ph $1.25
1. Nozzles— Germany 2. Cooling—Germany 3. Evaporation—Germany 4. Micro BIOS FD 1762/47, Frames 1-65

PB 80568s

Wieland, Hans
Non-ferrous sand casting foundry. Jul 1945. 3p Mi $1.25 Ph $1.25
1. Foundries—Germany 2. Wieland-Werk A. G., Ulm am Donau, Ger.

PB 95108

Winklhofer, John., & Söhne, Munich, Ger.
Driving chains for bicycles and motorcycles. 1937. 5f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95108s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Chains—Germany 2. Bicycles—Germany 3. Motorcycles—Germany 4. Micro BIOS FD 1916/46, Frames 1-3 5. BIOS FR 640 LD, Frames 1-3

MEDICAL RESEARCH AND PRACTICE, INCLUDING CLINICAL APPLICATION OF DRUGS AND PHARMACEUTICALS

PB 96473

Adams, William S. and Lawrence, John S.
Negative effect of folic acid on irradiation leukopenia in the cat. Oct 1947. 9p graphs, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)
The prophylactic and therapeutic administration of folic acid to cats did not alter the occurrence or the magnitude of leukopenia caused by exposure to 200 r whole body irradiation. The report includes five graphs and three tables. MDDC 1538

PB 96534

Adolph, Edward F. and others.
Study of adaptive mechanisms of water and salt exchanges in man and animals. Nov 1948. 108p graphs, tables Mi $4.50 Ph $13.75
Reprinted from the American Journal of Pathology v. 151, no. 1, Nov 1947
Pt 5. Urges to eat and drink in rats, by Edward E. Adolph; Pt 6. Studies of the toxicity of sea water in mammals, by Carolyn (B) Albrecht; Pt 7. Water ingestion and excretion in rats under the influence of some hormones, by E. F. Adolph; Pt 8. Partial nephrectomy and the water exchanges of rats, by E. F. Adolph and S. L. Parmington.

PB 96472

Anderson, E. H. and others.
Technique for irradiating microorganisms with artificially radioactive materials. Part II—External radiation sources. n.d. 12p photos (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)
Special irradiation chambers have been devised which permit the quantitative exposure of large numbers of microorganisms to high intensities of

beta radiation. Adequate shielding is incorporated in the chambers to provide complete protection to the operator. The source material used in the chambers is amorphous-red phosphorus impregnated in bakelite, according to the methods worked out by John R. Raper formerly of Clinton Laboratory. The beta ray sources, in the form of circular plaques, are activated in the Clinton pile. Two types of irradiation chambers will be described. One permits the exposure of microorganisms on an agar surface; the other allows small thicknesses of a liquid suspension to be irradiated in a uniform field of beta-rays, the intensity of which can be readily determined. MDDC 1615

PB 96804

Blockley, W. V. and Taylor, C. L.

Studies of human tolerance for extreme heat. Nov 1948. 204p photos, graphs, diagrs, tables Mi $7.50 Ph $26.25

Heart rate increases in a similar fashion to skin temperature, usually reaching values between 140 and 160 beats per minute. The maximum heart rate observed was 172 beats per minute. Blood pressure changes show greater individual differences than do other physiological factors. Systolic pressure rose during exposure in all cases, while diastolic pressure declined continuously in one subject, but remained relatively stable or slightly elevated in another. Electrocardiograms taken during and after heat exposure show minor variations from the normal resting records of the individual, but no distinct indications of heart damage can be seen. Comparisons have been drawn between the variants noted in our records and similar changes reported in the clinical literature. Rectal temperature changes are relatively slight and slow in onset as compared with other physiological reactions, and are an unreliable indication of the extent of heat stress on the body under these conditions of short exposure. Exhaled air temperature, measured at the mouth during channeled breathing responds rapidly to the heat load, and appears to be a useful indication of thermal stress. Measurement of temperatures at several locations in the respiratory passages indicates that the mucous membranes exert a strong regenerator influence, cooling the inhaled air by as much as 100°F. in a few inches of travel, and warming the exhaled air, though to a much lesser degree. However, as far as can be determined, the total respiratory system continues to serve as an avenue of heat loss even under conditions close to the extremes of these studies because of the evaporative loss. Respiratory ventilation increases markedly under heat stress, often reaching values 2 or 3 times the resting levels, though respiration rate is not significantly affected. Oxygen consumption apparently follows a course roughly parallel to that of ventilation. The rate of sweat loss is highly variable, but tends to increase with successively higher levels of ambient temperature. The rate of actural evaporation from the skin increases with ambient temperature at a considerably slower rate than does the total loss. Absolute values of the weight loss observed range from .9 to 2.5 pounds depending on the characteristics of the individual, the duration of exposure, and the ambient temperature level. Subjective symptoms of thermal strain are numerous, but only a relatively few were observed consistently in each experiment. Some sensations, while definite, are difficult to describe in precise terms. One common feature of all exposures carried to tolerance is a feeling of air hunger, associated with deep and irregular respiration. This symptom may be accompanied by restlessness and nervous irritability, while waves of dizziness may intervene at terminal stages. Heat transfer measurements and calculations give the heat load in terms of sensible heat gain (radiation plus convection). The relation of this measure, as well as ambient temperature, to thermal strain has been evaluated. The latter, expressed by an index composed of heart rate and skin temperature, may finally be predicted from a graphic plot of heat load (or ambient temperature) and exposure time. Finally, the actually observed tolerance times are compared to the indices of strain, heat load and time, and a tentative tolerance contour established. These results are discussed in relation to tolerance times reported by others in the literature. The following tabulation shows the mean value of tolerance times for two subjects, in two exposures, each to temperatures of 180°F. and above. Subjects wore the standard clothing mentioned in para. 2.1 above.

Ambient Temperature Level—°F.	Mean Tolerance Time for 4 Exposures—Minutes
180	49
200	33
220	26
240	23.5

Results of investigations conducted in 1947 and 1948 on the general problem of human response to high levels of environmental temperature are presented and discussed in relation to the tolerable limits of heat exposure. Some 50 individual experiments have been completed involving four average college students and the authors as subjects, consisting of multiple exposures to air temperature levels of 100, 140, 160, 180, 200, 220, 240 and one exposure at 250 degrees Fahrenheit. Humidity of the experimental environments was determined by the atmospheric humidity existing at the time of each exposure, as modified by the moisture production of the subject. The average humidity during heat exposure ranged from 0.25 to 0.9 inches Hg. vapor pressure, but in most experiments was of the order of 0.8 inches Hg. Wall temperatures approximated air temperature to within 5 to 10°F. in all experiments. Physiological reactions to the heat exposures

may be summarized as follows: Skin temperature rises continuously during exposure, the rate of rise being successively greater with increasing ambient temperature of levels. Maximum mean skin temperature observed was 107°F., reached in an exposure at 240°F. with the standard clothing (medium weight wool and cotton union suit). AAF TSEAA MR 696-113A

PB 96582

Hall, F. G.

The effect of prone position upon the duration of useful consciousness at altitude. Jan 1949. 6p tables Mi $1.25 Ph $1.25

I. Flying, High altitude—United States 2. Medicine, Aviation—United States 3. Psychology, Aviation—Consciousness tests—United States 4. AAF TSEAA MR 696-1071

PB 95785

Hamilton, J. G.

Technical progress report on the metabolic studies of fission products. May 1944. 2p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn., Mimeo: $.05)

Incomplete tracer studies with product indicate that less than 0.05% of this element is absorbed from the digestive tract in any of the three valence states. The behaviour of plus 4 product following intramuscular and intrapulmonary administration is very similar to that of zorconium. The metabolic properties of plus 3 and plus 6 product are very similar to those of yttrium and plus 3 pre product. MDDC 1061

PB 95539

Instituto di Sanita Pubblica.

Reports dealing with medical research, bacteriology, etc. 1939-1943. 305f (Text in Italian) Mi $9.00 Enl Pr $40.00

See PB 95539s for abstracts. 4p. Mi $1.25 Ph $1.25

I. Medical research—Italy 2. Bacteriology—Research—Italy 3. Micro BIOS FD 1726/45, Frames 6251-6532

PB 96581

Mahoney, David I.

Repeated explosive decompressions. Dec 1948. 3p Mi $1.25 Ph $1.25

I. Decompression, Explosive—United States 2. Dogs—Experiments—United States 3. AAF TSEAA MR 696-107H

PB 96001

Medizinische zeitschrift. (Medical journal). v. 19, Nos. 27-52. Jul-Dec 1940. v. 20, Nos. 1-20. Jan-May 1941. 606f (Text in German) Mi $9.00 Enl Pr $80.00

I. Medicine—Periodicals—Germany 2. Micro FIAT H 50, Frames 2105-2710

PB 96948

Meleney, Frank L.

Contaminated wounds and burns, Project M-705. May 1945. 2p tables Mi $1.25 Ph $1.25

I. Burns—Pathology 2. CMR IWB 23

PB 95650

Motokawa, Koiti.

Retinal processes as revealed by electrical stimulation of the eye and their role in color vision. n.d. 13p diagrs, graphs Mi $1.75 Ph $2.50

I. Retina—Electrical stimulation 2. Tohoku. Imperial University. Dept. of Physiology, Sendai, Japan

PB 95372

Overstreet, Roy and others.

Progress report on metabolism of fission products for period ending October 15, 1943. Jun 1947. 49p photos, graphs, tables Mi $2.50 Ph $7.50 (Limited supply mimeo $.20) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.20)

Part A. Unseparate Fission Products: Unseparated fission products have been isolated from 18 pounds of neutron bombarded $UO_2(NO_3)_2 \cdot 6H_2O$ free from carrier and containing less than .03 micrograms of Uranium per microcurie of activity. The final solution was assayed for its content of Strontium, Yttrium + Praseodymiun, Zirconium, Columbium, Ruthenium, Tellurium, Cesium, Barium, Cerium, and UX_1. Tracer studies were done on a large group of rats which received the prepared solution by intramuscular, intraperitoneal, intrapulmonary, and oral routes of administration. The time intervals ranged from one to sixty-four days. The skeleton was the chief point of deposition for the absorbed radioactive mixture for all four routes of administration. Considerable and prolonged retention occurred in the lungs following intrapulmonary administration. From 3 to 5% was absorbed from the digestive tract. Excretion was slow and the digestive tract was the chief channel of elimination. Approximately 50% of the activity was excreted over the sixty-four day period following intraperitoneal and intramuscular injection. *Part B. Radio-Ruthenium ($Ru^{>105}$):* A carrier free purified preparation of $Ru^{>105}$ has been isolated as a solution of $RuCl_4$ and tracer studies comparable to those for the fission mixture completed. $Ru^{>105}$ was found to be rather widely distributed throughout the body and the greatest degree of selective localization took place in the kidney which was considerably less than the degree of deposition and retention in bone for the alkaline earths, rare earths, Zirconium, Columbium, and the fission mixture. Excretion was much more rapid than for the above listed substances and by sixty-four days in the intraperitoneal and intramuscular group less than 15% of the administered $Ru^{>105}$ was retained. Roughly 2/5ths was eliminated by way of the kidneys and 3/5ths by

the digestive tract over the sixty-four day interval. No significant absorption took place by way of the digestive tract. Considerable retention of $Ru^{>105}$ took place in the lungs following intrapulmonary administration of the solution of $RuCl_4$. The distribution of the absorbed fraction was similar to that noted in the intraperitoneal and intramuscular studies. *Part C. Neptunium ($Np^{238,239}$):* A mixture of Np^{238} and Np^{239}, free from radioactive contaminents and inert hold-back carriers, was isolated from a Uranium metal target which had been bombarded by 16Mev deuterons. Tracer studies, which included the intraperitoneal, intrapulmonary, and oral routes of administration, were carried out over a period of 8 days. The metabolic behavior of Neptunium was found to resemble that of Yttrium more closely than any of the other fission products studied thus far. The pulmonary retention following intrapulmonary administration was considerably less than for the rare earths, Zirconium, Columbium, Ruthenium and fission mixture. Excretion was more rapid than that noted for the substances listed above with the exception of Ruthenium. The amount eliminated during the 8 day period of the experiments was almost equally divided between digestive tract and kidneys. No significant absorption by way of the digestive tract took place. *Part D. Radio-Autographic Studies:* A large series of radio-autographs have been prepared from the lungs of the rats which had received the fission mixture, Ruthenium and Neptunium by intrapulmonary administration. Photomicrographs of representative lung sections and their corresponding radio-autographs are included in the report. In the large series of radio-autographs prepared no significant deposition was noted in the bronchi, lymphoid tissue, and blood vessels. In all of the radio-autographs it was found that the radioactivity was distributed widely throughout the alveolar structure of the lungs. Frequently a tendency for the alveolar pattern of the sections to be duplicated on the radio-autograph was observed. MDDC 1011

PB 96671

Rhoads, J. E. and Starr, Isaac, Jr.

Convalescence in surgical patients. Progress reports 1-7: Convalescence and rehabilitation report no. 13 (abstracted). 1944-1945. 13p Mi $1.75 Ph $2.50

1. Convalescence 2. Surgery—Postoperative care 3. U. S. Office of Scientific Research and Development. Committee on Medical Research 4. CMR CR 13, abstract

PB 96474

Roth, Lloyd J. and others.

Studies on the metabolism of radioactive nicotinic acid. n.d. 4p drawing, graph (Limited supply mimeo $.05) (Also available from U.S.Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

It is shown that 51 percent of the nicotinic acid injected intraperitoneally into mice is metabolized and excreted in 100 hours. The distribution of C^{14} activity in the urine, CO_2 and feces is 45.1, 4.2 and 1.5 percent of the injected dose respectively. MDDC 1534

PB 95652

Santamarina, Victor

Archivos del Instituto Nacional de Hidrologia Y Climatologia Medicas. Jun 1948. 110p photos, tables Mi $4.50 Ph $13.75

1. Arthritis deformance—Therapy—Cuba 2. Cuba. Ministerio De Salubridad Y Assistericia Social

PB 95692

Schwan, Hermann

Determination of the dielectric and magnetic properties of inhomogeneous dielectrics, especially body tissues, in the decimeter wave range. n.d. 123p diagrs, graphs, tables (Text in German) Mi $5.00 Ph $16.25 Mimeo: $3.25

Title page, abstract and biographical note in English

1. Dielectrics—Tests 2. Wave length measurements 3. Tissue—Reaction 4. FIAT 1099

PB 96417

Stapleton, George E. and others.

Techniques for irradiating microorganisms with artificially radioactive materials. Part I. Radioactive material in suspension. n.d. 12p photos, graph (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

Methods include the preparation, incubation, and isolation of agar-plate cultures containing radio-phosphorus in high concentration, up to several millicuries of activity. Further description includes the use of liquid suspensions containing radiophosphorus. Pipetting, storing, washing, plating and isolation of micro-organisms are discussed and demonstrated. MDDC 1535

PB 87397r

U. S. Air Force and U. S. Navy Dept.

Certified X-ray laboratories. Nov 1948. 6p Mi $1.25 Ph $1.25

Revision of PB 87397

Superceding ANA Bulletin no. 245f

PB 46842r

U. S. Air Force.

Identification markings for first-aid kits: All aircraft. Jun 1948. 1p Mi $1.25 Ph $1.25

1. AAF TO 01-1-210, rev.

PB 46598r3

U. S. Air Force.

Installation, use, and inspection of first-aid kit, aeronautic. Apr 1948. 4p photos Mi $1.25 Ph $1.25

1. AAF TO 01-1-117, rev. 3

PB 70368s2

Dawihl, W. and others.

Hard metal alloys—titanium and vanadium. 1937-1940 2p Mi $1.25 Ph $1.25

Supplement 2 to PB 70368

1. Rix, W. 2. Schröter, K. 3. Berlin. Studiengesellschaft für elektrische beleutung (OSRAM) 4. Micro FIAT B 274, Frames 1-18, abstract

PB 73687s2

Deutsche Pulvermetallgesellschaft, Neurod, Ger.

Powder metallurgy and the case-hardening of steel with beryllium and the use of ceramic parts in gas turbines. Abstracts. 1938-1945. 11p Mi $1.75 Ph $2.50

Supplement 2 to PB 73687

1. Micro FIAT Y 1, Frames 1-768, abstracts 2. Micro BIOS FDX 199, abstracts

PB 70165s2

Deutsche Röhrenwerke A. G., Versuchsanstalt, Mülheim, Ger.

Tests and research in connection with galvanized and cladded metal sheet, its working and welding, and the electrodes used. 1937-1943. 5p Mi $1.25 Ph $1.25

Supplement 2 to PB 70165

1. Micro FIAT N 15, Frames 1-760, and 1-113, not numbered correctly, abstracts

PB 96776

Handbuch für die auswahl der im deutschen Flugzeubau zu verwendeten Werkstoffe. 1. Teil Metallische Werkstoffe. (Materials handbook for the German Aircraft industry. Part 1. Metal. Prepared by the Materiel Division, German Aircraft Ministry). 1942. 220f (Text in German) Mi $7.75 Enl Pr $28.75

No abstract available

1. Metals—Germany 2. Micro BIOS FD 1538/48, Frames 1-219

PB 73686s2

Hoesch A. G., Dortmund, Ger.

Tests in connection with the manufacture and heat treatment of iron and steel, and on finished material submitted to the laboratories. 1940-1942. 3p Mi $1.25 Ph $1.25

Supplement 2 to PB 73686

1. Micro FIAT T 44, Frames 2441-2558, abstract

PB 73365s2

I. G. Farbenindustrie A. G., Bitterfeld, Ger.

Magnesium; ammonium cryolite and ammonium nitrate; ash removal from anthracite; polyvinyl chloride, antifreezing agents; corrosion tests; aluminum extraction; calcium chlorate; zirconium powder. 1942-1945. 6p Mi $1.25 Ph $1.25

Supplement 2 to PB 73365

1. Micro FIAT BB 212, Frames 6107-6580, abstracts

—62278

PB 96945

Rick, C. E. and McKinley, T. D.

Sintering of melting of boron and preparation of hyper-pure germanium. Progress Report. Sep 1944. 13p drawings, graph, tables Mi $1.75 Ph $2.50

1. Boron—Sintering 2. Germanium—Preparation 3. DuPont de Nemours, E. I., Co., Inc., Pigments Dept., Newport, Del. 4. NDRC 14-318

PB 96725

Schuette, E. H.

Observations on the maximum average stress of flat plates buckled in edge compression. Feb 1949. 23p charts Mi $2.00 Ph $3.75

Compressive-strength data on flat plates for a number of aircraft structural materials were subjected to graphical study. The relationship between maximum average stress and critical stress, in the region where they are appreciably different, is described by equations of the type in which the maximum average stress equals a constant times the one-fourth power of the critical stress times the three-fourths power of the compressive yield stress. NACA TN 1625

PB 74156s

Siemens-Schuckertwerke A. G., Berlin.

Apparatus for tinning aluminum wire by the use of ultrasonic oscillations. 1946 2p Mi $1.25 Ph $1.25

Supplement to PB 74156

1. Micro FIAT CC 299, Frames 1-5, abstracts

PB 73642s2

Siemens-Schuckertwerke A. G., Berlin.

Steel working materials for electrical equipment. Abstracts. 1941-1942. 4p Mi $1.25 Ph $1.25

Supplement 2 to PB 73642

1. Micro FIAT J 234, Frames 6812-6962, abstracts 2. Micro BIOS FDX 209, abstracts

PB 26751r3

U. S. Air Force and U. S. Navy Dept.

Bosses: Pipe-thread, internal standard dimensions for. Air Force-Navy aeronautical design standard. Sep 1948. 1p drawings, table Mi $1.25 Ph $1.25

1. AND 10053-3

PB 25907R4

U. S. Air Force and U. S. Navy Dept.

Eye: Turnbuckle (for cable). Air Force-Navy aeronautical standard. Sep 1948. 1p drawings, table Mi $1.25 Ph $1.25

1. AN 170-4

PB 25906r2

U. S. Air Force and U. S. Navy Dept.

Eye: Turnbuckle (for pin). Air Force-Navy aeronautical standard. Sep 1948. 1p drawings, table Mi $1.25 Ph $1.25

1. AN 165-2

PB 26769r2

U. S. Air Force and U. S. Navy Dept.
Fitting end: Standard dimensions for taper pipe thread (for use on AN standard parts). Air Force-Navy aeronautical standard. Sep 1948. 1p drawings, table Mi $1.25 Ph $1.25
I. AND 10077-2

PB 25932r2

U. S. Air Force and U. S. Navy Dept.
Joint: Universal (heavy duty). Air Force-Navy aeronautical standard. Oct 1948. 1p drawings, table Mi $1.25 Ph $1.25
Revision 2 of PB 25932
I. AN 271-2

PB 26023r2

U. S. Air Force and U. S. Navy Dept.
Nipple: Union. Air Force-Navy aeronautical standard. Oct 1947. 1p drawings, tables Mi $1.25 Ph $1.25
I. AN 780-2

PB 25948r2

U. S. Air Force and U. S. Navy Dept.
Rivet: 100° countersunk head (Steel, monel and copper). Air Force-Navy aeronautical standard. Nov 1948. 1p drawings, tables Mi $1.25 Ph $1.25
Revision 2 of PB 25948
I. AN 427-2

PB 25951r

U. S. Air Force and U. S. Navy Dept.
Rivet: Round head (Steel, monel and copper). Air Force-Navy aeronautical standard. Sep 1948. 1p drawings, tables Mi $1.25 Ph $1.25
I. AN 435-1

PB 25976r

U. S. Air Force and U. S. Navy Dept.
Screw: Wood, 82° flat head. Air Force-Navy aeronautical standard. Sep 1948. 1p tables Mi $1.25 Ph $1.25
I. AN 550-1

PB 25975r

U. S. Air Force and U. S. Navy Dept.
Screw: Wood, round head. Air Force-Navy aeronautical standard. Sep 1948. 1p tables Mi $1.25 Ph $1.25
I. AN 545-1

PB 21560a

U. S. Air Force and U. S. Navy Dept.
Specification; pipe threads; taper, aeronautical national form, symbol ANPT. Nov 1948. 2p table Mi $1.25 Ph $1.25
Revision of PB 21560
I. AN-P-363, amendment 1

—62278

PB 26733r

U. S. Air Force and U. S. Navy Dept.
Wrench: 1/2 inch square drive adjustable spanner (1.75 to 4 inches DIA). Air Force-Navy aeronautical standard. Sep 1948. 1p drawings, table Mi $1.25 Ph $1.25
I. AN 8515-1

PB 26732r

U. S. Air Force and U. S. Navy Dept.
Wrench: 3/8 inch square drive adjustable spanner (.75 to 2 inches DIA). Air Force-Navy aeronautical standard. Sep 1948. 1p drawings, table Mi $1.25 Ph $1.25
I. AN 8514-1

PB 70024s2

Vereinigte Aluminiumwerke Lautawerk A. G., Lausitz, Ger.
Aluminum production, with plant installation, and methods for aluminum analysis. 1937-1944. 7p Mi $1.25 Ph $1.25
Supplement 2 to PB 70024
I. Micro FIAT K 4, Frames 734-1542, abstract

ORDNANCE AND ACCESSORIES

PB 96907

Delsasso, L. A. and others.
Full-scale free-flight ballistic measurements of guided missiles. Jan 1948. 56p photos, diagrs, graphs Mi $2.75 Ph $7.50
Special problems arising in the instrumentation of full-scale free-flight tests are considered, particularly as pertaining to guided missiles. Applications of specialized optical and electronic equipment is considered in detail. Under optical instrumentation such problems as the modification and application of acceleration cameras, photo-theodolites, and precision-plate cameras are discussed. In addition, the development of tracking telescopes using refractors and reflectors of large effective focal length in conjunction with special mounts for studying the behavior of missiles during the entire flight is discussed, and results obtained so far from these instruments is considered. Under electronic instrumentation the use of radar for trajectory determinations and the modifications necessary on standard radar equipment for use in long-range guided missiles is discussed. The use of radio-doppler and the application to this field is considered in detail, and the problems and advantages encountered in this field are presented. The usefulness of microwave reflection doppler equipment is also reviewed. Finally, a comparison of the results obtained by the various systems of instrumentation is made. APG BRLR 660

PACKING AND PACKAGING

PB 95322

Marschall, Charles B.
Standardization of visual morphine syrette containers. Sep 1948. 6p photos Mi $1.25 Ph $2.50
I. Containers, Morphine 2. Morphine—Packaging 3. AAF TSEAA MR 698-39A

PB 26714r2

U. S. Air Force and U. S. Navy Dept.
Container assembly: Metal shipping (4 gallons). Air Force-Navy aeronautical standard. Oct 1948. 1p drawings Mi $1.25 Ph $1.25
Revision 2 of PB 26714

PB 26715r2

U. S. Air Force and U. S. Navy Dept.
Container assembly—metal shipping (6 and 7 gallons). Air Force-Navy aeronautical standard. Oct 1948. 1p drawings Mi $1.25 Ph $1.25
Revision 2 of PB 26715

PB 26716r2

U. S. Air Force and U. S. Navy Dept.
Container assembly: Metal shipping (9 and 13 gallons). Air Force-Navy aeronautical standard. Oct 1948. 1p drawings Mi $1.25 Ph $1.25
Revision 2 of PB 26716

PB 26717r3

U. S. Air Force and U. S. Navy Dept.
Container assembly: Metal shipping (15 and 19 gallons). Air Force-Navy aeronautical standard. Oct 1948. 1p drawing Mi $1.25 Ph $1.25
Revision 3 of PB 26717

PB 95640

U. S. Air Force and U. S. Navy Dept.
Container assembly: Metal shipping interior, reuseable. Air Force-Navy aeronautical standard. Oct 1948. 1p drawings, tables Mi $1.25 Ph $1.25
I. Containers, Shipping—Metal

PB 95266

U. S. Air Force and U. S. Navy Dept.
Containers: Moisture impervious. Air Force-Navy aeronautical bulletin. Sep 1948. 4p tables Mi $1.25 Ph $1.25
I. Containers, Moisture proof

PB 39749r3

U. S. Air Force.
Fiberboard folding and set-up cartons. Feb 1948. 3p photos Mi $1.25 Ph $1.25
I. AAF TO 00-85-4, rev. 3

—82278

PB 96239

U. S. Air Force and U. S. Navy Dept.
Preservation and packaging of tubosuperchargers. specification. Dec 1948. 10p drawings, tables Mi $1.25 Ph $1.25
I. Superchargers, Turbo

PB 57100r3

U. S. Air Force.
Preservation, packaging, and packing of antifriction bearings. Aug 1948. 2p photo Mi $1.25 Ph $1.25
I. AAF TO 00-85A-04-1-3

PB 39756s3

U. S. Air Force.
Protective packing and preservation packaging: Packaging of man-carrying parachutes in metal containers. Nov 1947. 1p tables Mi $1.25 Ph $1.25
I. AAF TO 00-85A-13-1C-3

PB 87141

U. S. Army Air Forces.
Set: Development, control, packaging and corrosion, engineering standards. Feb 1947. 5p Mi $1.25 Ph $1.25
I. Packaging materials—Tests 2. Crating and packing 3. Corrosion—Prevention 4. AAF TO 00-30-785

PAPER AND ALLIED PRODUCTS

PB 95615

France. Ministère de la Production.
Miscellaneous reports dealing with paper. 1940-1945. 368f (Text in German) Mi $9.00 Enl Pr $51.25
See PB 95615s for abstracts. 18p. Mi $1.75 Ph $2.50
I. Paper—Research—Germany 2. Micro FIAT A 331, Frames 6783-7151

PB 95615

Darmstadt. Technische Hochschule, Institut für Papierfabrikatien.
Experiments in manufacturing fog-filter paper. 1940. Frames 6763-6769 (Text in German) Enl Pr $2.50
I. Filter paper—Research—Germany 2. Micro FIAT A 331, Frames 6763-6769 3. Micro BIOS FD 805/47, Frames 6763-6769

PB 95615

Darmstadt. Technische Hochschule. Institut für Papierfabrikatien.
Pulp grinding in stages. 1942. Frames 6770-6791 (Text in German) Enl Pr $5.00

UNIVERSITY OF MICHIGAN LIBRARIES

1. Paper pulp—Grinding—Germany 2. Micro FIAT A 331, Frames 6770-6791 3. Micro BIOS FD 3249/46, Frames 6770-6791

PB 95615

Darmstadt. Technische Hochschule. Institut für Papierfabrikation.

Pulp drying. 1943-1945. Frames 6791A-6843 (Text in German) Enl Pr $8.75

1. Paper pulp—Drying—Germany 2. Micro FIAT A 331, Frames 6791A-6843 3. Micro BIOS FD 3256/46, Frames 6791A-6843

PB 95615

Darmstadt. Technische Hochschule, Institut für Papierfabrikation.

Sulphate and sulphite spin paper for fine yarn and binder twine. 1943-1944. Frames 6844-6922 (Text in German) Enl Pr $11.25

1. Twine, Paper—Production—Germany 2. Paper, Spin—Germany 3. Micro FIAT A 331, Frames 6844-6922 4. Micro BIOS FD 3264/46, Frames 6844-6922

PB 95615

Darmstadt. Technische Hochschule. Institut für Papierfabrikation.

Research reports relating to sizes for paper. 1941-1942 Frames 6923-7040 (Text in German) Enl Pr $15.00

1. Paper—Quality—Germany 2. Paper—Research—Germany 3. Micro FIAT A 331, Frames 6923-7040 4. Micro BIOS FD 3266/46, Frames 6923-7040

PB 95615

Darmstadt. Technische Hochschule. Institut für Papierfabrikation.

Tests on resistance to heat of sulphite and sulphate cellulose. 1940-1942. Frames 7040A-7151 (Text in German) Enl Pr $3.75

1. Cellulose—Tests—Germany 2. Micro FIAT A 331, Frames 7040A-7151 3. Micro BIOS FD 3267/46, Frames 7040A-7151

PB 66143

Simmonds, F. A. and others.

Wet-strengthened fiberboard from reclaimed fiber. Dec 1944. 21p graphs Limited supply mimeo $1.00; thereafter Mi $1.00 Ph $2.00 (Bib. v.5, p.970)

1. Fiberboard—Tests 2. FPL R 1469

PB 66142

Skidmore, K. E. and Myers, Earl C.

Tests of solid fiberboard boxes made of wet-strengthened reclaimed material. Jan 1945. 28p photos Limited supply mimeo $1.00; thereafter Mi $1.00 Ph $2.00 (Bib. v.5, p.970)

1. Fiberboard—Tests 2. Boxes, Fiberboard 3. FPL R 1470

—62278

PB 81508

U. S. Bureau of Ships.

Technical literature news (Moscow) nos. 9-12, 1940 and nos. 1-3, 1941; and "Bumazhnaya" (Paper industry journal), 1940. 834f (Text in Russian) Mi $9.00 Enl Pr $108.75

1. Science—Periodicals—Russia 2. Periodicals—Russia 3. Title: Paper industry journal, 1940 (Russian) 4. Title: Technical Literature news, 1940-1941 (Russian) 5. Micro NAVSHIPS D 313, Frames 8478-9296

PHOTOGRAPHIC AND OPTICAL GOODS

PB 70381t3

Askania-Werke, Berlin.

Process for applying reflection-reducing coatings to optical elements. Oct 1948. 6p Available from Research Information Service, 509 Fifth Avenue, New York, N. Y. $9.00

1. Micro FIAT G 170, Frames 706-711, trans

PB 82210t3

Claus, Bruno

Improved process for producing peptization emulsions. Oct 1948. 12p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $17.50

1. Micro FIAT B 77, Frames 5371-5378, trans

PB 74175t2

I. G. Farbenindustrie A. G.

Directions for production of separation negatives from subtractive color negatives. Apr 1948. 7p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $8.50

1. Films (Photography), Color—Germany 2. Micro FIAT D 3, Frames 73-74; 77-78, trans.

PB 74177t3

I. G. Farbenindustrie A. G., Wolfen, Ger.

New objective method for testing color rendition of films. Apr 1948. 4p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $6.00

1. Films (Photography), Color—Germany 2. Micro FIAT D 6, Frames 16-17, trans.

PB 73099s

Leitz, Ernst, G.m.b.H., Wetzlar, Ger.

Calculations for various optical lens systems (objectives, eye pieces, etc.). Abstract. 1930-1939. 4p Mi $1.25 Ph $1.25

Abstract of Micro FIAT H 16, Frames 1-1255 (PB 73099)

1. Micro FIAT H 16, Frames 1-1255, abstract

PB 70381t4

Leitz, Ernst, G.m.b.H., Wetzlar, Ger.
Centrifuging device for applying coatings of silicic acid and similar compounds to optical glasses. Oct 1948. 3p Available from Research Information Service, 509 Fifth Avenue, New York, N. Y. $3.00
I. Micro FIAT G 170, Frames 731-733, trans

PB 73048s

Leitz, Ernst G.m.b.H., Wetzlar, Ger.
Drawings and lists of components of various types of microscopes. Abstract. 1934-1946. 3p Mi $1.25 Ph $1.25
Supplement I to PB 73048
I. Micro FIAT F 23, Frames 1002-1985, abstract

PB 73077s

Leitz, Ernst Werke G.m.b.H., Wetzlar, Ger.
Drawings of jigs, fixtures, special tools, gauges and calibrating devices. 1937-1944. 4p Mi $1.25 Ph $1.25
Abstract of Micro FIAT G 33, Frames 1467-2070 (PB 73077)
I. Micro FIAT G 33, Frames 1467-2070, abstract

PB 73033s

Leitz, Ernst, G.m.b.H., Wetzlar, Ger.
Drawings of optical apparatus and parts. Abstract. 1940-1946. 3p Mi $1.25 Ph $1.25
Abstract of Micro FIAT F 7, Frames 6850-7811 (PB 73033)
I. Micro FIAT F 7, Frames 6850-7811, abstracts

PB 73076s

Leitz, Ernst Werke G.m.b.H., Wetzlar, Ger.
Gauges, measuring instruments, jigs and fixtures, and special machines. 1928-1945. 6p Mi $1.25 Ph $1.25
Abstract of Micro FIAT G 32, Frames 1144-1466 (PB 73076)
I. Micro FIAT G 32, Frames 1144-1466, abstract

PB 73021s

Leitz, Ernst Werke G.m.b.H., Wetzlar, Ger.
Gun-ranging and gun-laying instrument drawings. 1938-1944. 4p Mi $1.25 Ph $1.25
Abstract of Micro FIAT D 17, Frames 1722-19678 (PB 73021)
I. Micro FIAT D 17, Frames 1772-19678, abstract

PB 73073s

Leitz, Ernst, Werke, Wetzlar, Ger.
Image conversion "viewing-instrument" drawings. Abstract. 1942-1945. 5p Mi $1.25 Ph $1.25
Supplement to PB 73073
I. Micro FIAT G 29, Frames 1-703, abstracts

PB 73074s

Leitz, Ernst, Werk, Wetzlar, Ger.
Image conversion "viewing-instrument" drawings and miscellaneous. Abstract. 1941-1944. 3p Mi $1.25 Ph $1.25
Supplement to PB 73074
I. Micro FIAT G 29-30, Frames 705-928a, abstracts

PB 73026s

Leitz, Ernst, G.m.b.H., Wetzlar, Ger.
Jigs and fixtures (Drawings). 1940-1944. 2p Mi $1.25 Ph $1.25
Abstract of Micro FIAT D 221, Frames 4973-5163 (PB 73026)
I. Micro FIAT D 22, Frames 4973-5163, abstracts

PB 73022s

Leitz, Ernst G.m.b.H., Wetzlar, Ger.
Jigs, gauges and special tools for producing the range finding telescopes, drawings of which are on the films PB 73019 and 73021. Abstract. 1941-1944. 3p Mi $1.25 Ph $1.25
Supplement I to PB 73022
I. Micro FIAT D 16, Frame 746, abstract

PB 73024s

Leitz, Ernst G.m.b.H., Wetzlar, Ger.
Jigs, tools and gauges, and calibration and collimation optical instruments. Abstract. 1935-1945. 4p Mi $1.25 Ph $1.25
Supplement I to PB 73024
I. Micro FIAT D 20, Frame 774, abstract

PB 73091s

Leitz, Ernst G.m.b.H., Wetzlar, Ger.
Lens computation figures. Abstract. 1935-1946. 2p Mi $1.25 Ph $1.25
Supplement I to PB 73091
I. Micro FIAT H 8, Frames 1-1562, abstract

PB 73092s

Leitz, Ernst Werke G.m.b.H., Wetzlar, Ger.
Lens computations. 1912-1945. 2p Mi $1.25 Ph $1.25
Abstract of Micro FIAT H 9, Frames 1-1503 (PB 73092)
I. Micro FIAT H 9, Frames 1-1503, abstract

PB 73100s

Leitz, Ernst, G.m.b.H., Wetzlar, Ger.
Lens computations. Abstract. 1928-1939. 3p Mi $1.25 Ph $1.25
Abstract of Micro FIAT H 17, Frames 1-1316 (PB 73100)
I. Micro FIAT H 17, Frames 1-1316, abstracts

PB 73123s

Leitz, Ernst G.m.b.H., Wetzlar, Ger.
Lens computations. Abstract. 1932-1945. 2p Mi $1.25 Ph $1.25
Supplement I to PB 73123
I. Micro FIAT I 3, Frames 1-1629, abstract

PB 73124s

Leitz, Ernst, G.m.b.H., Wetzlar, Ger.
Lens computations. Abstract. 1937-1940. 2p Mi $1.25 Ph $1.25

Abstract of Micro BIOS I 4, Frames 1-1234 (PB 73124)
1. Micro FIAT I 4, Frames 1-1234, abstracts

PB 73094s

Leitz, Ernst, G.m.b.H., Wetzlar, Ger.
Lens computations. Abstract. 1937-1944. 2p Mi $1.25 Ph $1.25
Abstract of Micro BIOS H 11, Frames 1-1529 (PB 73094)
1. Micro FIAT H 11, Frames 1-1529, abstracts

PB 73095s

Leitz, Ernst, G.m.b.H., Wetzlar, Ger.
Lens computations. Avstract. 1940-1944. 2p Mi $1.25 Ph $1.25
Abstract of Micro BIOS H 12, Frames 1-1278 (PB 73095)
1. Micro FIAT H 12, Frames 1-1278, abstracts

PB 73096s

Leitz, Ernst Werke G.m.b.H., Wetzlar, Ger.
Lens computations and data. 1936-1945. 3p Mi $1.25 Ph $1.25
Abstract of Micro FIAT H 13, Frames 1-920 (PB 73096)
1. Micro FIAT H 13, Frames 1-920, abstract

PB 73321t2

Leitz, Ernst, G.m.b.H., Wetzlar, Ger.
Optical accessory system for microscopes. Dec 1948. 4p drawing Available from Research Information Service 509 Fifth Avenue, New York 17, N. Y. $4.50
1. Micro FIAT B 51, Frames 2064-2066, trans

PB 73019s

Leitz, Ernst Werke G.m.b.H., Wetzlar, Ger.
Optical instruments. 1938-1944. 4p Mi $1.25 Ph $1.25
Abstract of Micro FIAT D 15, Frames 619-1364 (PB 73019)
1. Micro FIAT D 15, Frames 619-1364, abstract

PB 73321t

Leitz, Ernst, G.m.b.H., Wetzlar, Ger.
Projection screen for color films or transparencies. Oct 1948. 9p Available from Research Information Service, 509 Fifth Avenue, New York, N. Y. $9.00
1. Micro FIAT B 51, Frames 2196-2198, trans

PB 73102s2

Leitz, Ernst G.m.b.H., Wetzlar, Ger.
Technical drawings for the production of optical instruments and microtomes. Calculations of lens systems. Abstract. 1929-1945. 4p Mi $1.25 Ph $1.25
Abstract of Micro FIAT H 19, Frames 1-1029 (PB 73102)
1. Micro FIAT H 19, Frames 1-1029, abstract

—62278

PB 73016s2

Leitz, Ernst G.m.b.H., Wetzlar, Ger.
Works reports and memos dealing mainly with night glasses and microscopes. Abstract. 1935-1944. 4p Mi $1.25 Ph $1.25
Supplement 2 to PB 73016
1. Micro FIAT C 32, Frame 425, abstract

PB 82211t2

Maul, Michael.
Camera with fully automatic adjustment of exposure. Nov 1948. 19p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $28.50
1. Micro FIAT G 51, Frames 8116-8132, trans

PB 97118

U. S. War Dept.
Advanced map and aerial photograph reading. Dec 1944. 146p photos, diagrs, maps, graphs Mi $5.75 Ph $18.75
1. Photography, Aerial—Interpretation 2. Photogrammetry 3. WD FM 21-26

PHYSICS

General

PB 96705

Drucker, D. C.
Method of oblique incidence in photoelasticity. 1948. 32p drawings Mi $2.25 Ph $5.00
1. Stresses—Distribution 2. Photoelasticity—Measurements 3. Brown University. Graduate Division of Applied Mathematics

PB 93013

Eichinger, A.
Contributions to the thermodynamic principles of deformation(translation). May 1945. 20f Mi $1.75 Enl Pr $3.75
No abstract available
1. Deformation 2. Thermodynamics 3. Micro BIOS FD 693/48, Frames 1-20

PB 93014

Eichinger, A.
Wave propagation in solid bodies. May 1945. 10f (Text in German) Mi $1.25 Enl Pr $2.50
No abstract available
1. Wave propagation—Germany 2. Micro BIOS FD 694/48, Frames 1-10

PB 93016

Fink, K.
Shock measurements of solid bodies. n.d. 8f (Text in German) Mi $1.25 Enl Pr $2.50
No Abstract available
1. Shock measurements 2. Micro BIOS FD 697/48, Frames 1-8

PB 89186

Gründer, W.

Umlaufzelle für flotationsversuche. (Rotary cell for flotation tests). Dec 1938. 2p diagr (Text in German) Mi $1.25 Ph $1.25

1. Flotation—Tests—Germany 2. Cells, Rotary—Germany

PB 95128

I. G. Farbenindustrie A. G., Hoechst, Ger.

Technical application of the law of similarity. 1944. 107f (Text in German) Mi $4.50 Enl Pr $15.00

See PB 95128s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Similarity, Law of 2. Micro BIOS FD 4130/47, Frames I-IV, 1-98

PB 95496

I. G. Farbenindustrie A. G., Leverkusen, Ger.

Minutes of conferences of physicists, 1944, 1945, 1946. 1944-1946. 16f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 95496s for abstracts. 3p. Mi $1.25 Ph $1.25

1. Physicists—Germany 2. Physics—Research—Germany 3. Micro BIOS FD 4118/47, Frames 1-15

PB 95684

Joos, Georg. and others.

Physics of solids, Part II. (FIAT Review of German Science 1939-1946). 1948. 241p (Text in German) Mimeo: $3.00 Mi $9.00 Ph $31.25

See PB 85002 for Part I

1. Physics—Germany 2. Solids—Properties—Germany 3. U. S. Field Information Agency, Technical

PB 95668

Kimara, Atsushi.

Wave form of atmospherics. n.d. 6p graphs Mi $1.25 Ph $1.25

This report may not reproduce well

1. Atmospherics—Waves

PB 96754

Kondo, Kazuo

The geometry of the general perfect tension field (first report). n.d. 2p Mi $1.25 Ph $1.25

Unpublished. Read at 1st session of Japanese Society of Applied Mechanics. Nov 1947

1. Mechanics— Japan 2. Physics— Research

PB 90813

Luftfahrtforschungsanstalt Hermann Göring, E. V., Braunschweig, Ger.

Determination of adiabatic temperature and heat gradient 0 to 3,000°, 1942. 64f Mi $2.75 Enl Pr $8.75

See PB 90813s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Adiabatic phenomena—Germany 2. Micro BIOS FD 1700/46, Frames 1-55

PB 95870

Ödman, Sven T. A.

A method for solving partial differential equations with application to rectangular plates. 1948. 13p table, graphs Mi $1.75 Ph $2.50

1. Equations, Differential 2. Svenksa Forskningsinstitutet för Cement och Betong vid Kungl. Tekuska Högskolan i Stockholm. Meddelanden no. 10

PB 95949

Physikalische berichte. (Physical reports). v. 20, No. 13-24. 1939. 868f (Text in German) Mi $9.00 Enl Pr $112.50

1. Physics—Periodicals—Germany 2. Micro FIAT O 95, Frames 7201-8069

PB 95942

Physikalische berichte. (Physics reports). v. 22, Nos. 1-12. 1941. 668f (Text in German) Mi $9.00 Enl Pr $86.25

1. Physics—Periodicals—Germany 2. Micro FIAT O 98, Frames 9685-9999 and 1-353

PB 95662

Rikagaku Kenkyusho (Institute of Physical and Chemical Research), Tokyo and others.

Geophysical research of cosmic rays in Japan. Communications to the Meeting of the International Association of Terrestrial Magnetism and Electricity held at Oslo, in 17-28 August 1948. Mar 1948. 40p tables, graphs Mi $2.25 Ph $5.00

1. Nagoya. Imperial University. Cosmic Ray Laboratory 2. Tohoku Imperial University. Geophysical Institute, Sendai, Japan 3. Cosmic radiation—Japan

PB 85018

Süss, Wilhelm and others.

Pure mathematics, Part II. 1948. 269p (Text in German) Mi $9.00 Ph $33.75 Mimeo: $3.00

For part I see PB 95687

1. Mathematics—Germany 2. U. S. Field Information Agency, Technical

PB 95868

Tham, Percy

Photogrammetric orientation data and determination of their accuracy. Physics and applied mathematics series, v. I no. 4. 1948. 36p graphs Mi $2.25 Ph $5.00

1. Photogrammetry 2. Acta Polytechnica no 14 1947

PB 85024

Walther, Alwin and others.

Applied mathematics, Part I. 1948. 307p (Text in German) Mi $9.00 Ph $38.75 Mimeo: $3.00

For Part 3 see PB 85012

1. Mathematics, Applied—Germany 2. Fluid mechanics—Germany 3. U. S. Field Information Agency, Technical

PB 95867

Westberg, R.

On the harmonic and bi-harmonic problems of a region bounded by a circle and two parallel lines. Physics and applied mathematics series, v. I no. 3. 1948 69p drawings, tables Mi $3.00 Ph $8.75

1. Mathematics, Applied—Sweden 2. Hydrodynamics—Sweden 3. Elasticity—Theory—Sweden 4. Acta Polytechnica 18(1948)

Nuclear

PB 94889

Agnew, H. M. and others.

Number of neutrons emitted by Ra + Be source. Source II—Experiments in a water tank. Sep 1942. 6p Mi $1.25 Ph $1.25 (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The number of neutrons emitted by a Ra + Be source was measured by integrating the thermal neutron activity of a standard detector in a water tank. It was found that the number of neutrons emitted by Source II (10 g of Be mixed with 1 g of Ra) is 14.0×10^6 neutrons per second. MDDC 878

PB 96371

Agron, P. and others.

Intermediate uranium fluoride compounds (α-UF_5, β-UF_5, U_2F_9, and U_4F_{17}). n.d. 8p (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The occurrency of two allotropic forms of the pentafluoride has been established by means of X-ray diffraction and chemical analysis. A brief survey of the conditions of preparation of α-UF_5 and β-UF_5 is given. The black uranium fluoride originally designated as "black UF_4" has been identified as U_2F_9 by means of chemical analysis and X-ray measurements. A brief discussion of the conditions of preparation and the properties of this compound is presented. According to the nomenclature of the International Union of Chemistry, this compound should be called diuranium enneafluoride. A new uranium fluoride compound, composition U_4F_{17}, has been established by means of chemical and X-ray analysis. A discussion of the conditions of preparation is presented. The X-ray diffraction pattern of U_4F_{17} is compared with that of green monoclinic UF_4. MDDC 1588

PB 95760

Anderson, H. L. and Novick, A.

Magnetic moment of He^3. Jan 1948. 2p diagr (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Tritium—Radioactivity 2. Radioactive substances—Decay determination 3. MDDC 1684

PB 95774

Anderson, Herbert L. and others.

Production of low energy neutrons by filtering through graphite. n.d. 4p drawing, table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Neutrons—Energy measurements 2. Graphite—Uses 2. Atomic power—Research 4. MDDC 54

PB 95787

Bailey, C. and others.

Scattering of protons by deuterons. Sep 1946. 20p diagrs, drawings, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn., Mimeo: $.10)

1. Protons—Scattering 2. Deuterons—Reactions 3. Atomic power—Research 4. MDDC 670

PB 95784

Bell, P. R.

Use of anthracene as a scintillation counter. n.d. 3p graphs (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Counters, Electronic 2. Anthracene—Crystallization 3. Atomic power—Research 4. AECD 1854

PB 94844

Berger, Artur

Untersuchung der Teilchenemission von Lithium und Bor unter der Einwirkung von langsamen Neutronen. (Investigation of particle emission of lithium and boron under the influence of slow neutrons). Dec 1939. 24p graphs (Text in German) Mi $2.00 Ph $3.75

1. Nuclear physics—Germany 2. Lithium 3. Boron 4. Berlin. Technische Hochschule

PB 85019

Bothe, Walther and others.

Nuclear physics and cosmic rays, Part II. 1948. 200p (Text in German) Mi $7.00 Ph $25.00 Mimeo: $3.00

1. Nuclear physics—Germany 2. Cosmic radiation—Germany 3. U. S. Field Information Agency, Technical

PB 95367

Brewer, Leo

Estimation of heats of formation. Feb 1948. 4p Mi $1.25 Ph $1.25 (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

The procedure for estimation of heats of formation of compounds is illustrated by discussion of

compounds of several elements in the actinide series. The procedure is particularly suited for lanthanide and actinide elements because of the similarity of the ionic radii and types of bonding. AECD 1911

PB 96396

Brewer, Leo and others.

Halides of neptunium. Oct 1945. 22p tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The thermodynamic data for the ions of neptunium are given from which the heats of formation of the neptunium halides are obtained. Using these the regions of stability of the halides can be calculated. The calculations indicate that NpF_6 and $NpCl_5$ are the stable halides of highest oxidation number. $NpBr_4$ is the highest bromide which is stable and in the iodide system, only NpI_3 is stable. Calculations based on the thermodynamic data of this report were checked against the observed chemical behavior and the excellent checks lend confidence to the use of these data for calculations on unexplored regions. MDDC 1417

PB 95763

Burger, L. L.

Determination of hydrogen in fluorocarbons. n.d. 4p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Fluorocarbons—Analysis 2. Hydrogen—Determination 3. Atomic power—Research 4. AECD 2318

PB 95800

Connick, R. E. and McVey, W. H.

The aqueous chemistry of zirconium. Mar 1948. 57p Limited supply Mimeo: $.25 Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn., Mimeo: $.25

A system involving a two phase equilibrium was used to study the chemistry of zirconium to the ± 4 oxidation state in dilute acid solution. The equilibrium studied was one between the various zirconium species in an aqueous phase and the thenoyltrifluoracetone chelate of zirconium in a benzene phase. From this study it was shown that the zirconium species in 2.00 M perchloric acid is principally $ZrOH^{+3}$ which hydrolyzes further at lower acidities to form $Zr(OH)_2^{+2}$. Equilibrium quotients were obtained for the equilibria existing between $ZrOH^{+3}$ and zirconium species complexed by one and two sulfate groups in 2.00 M $HClO_4$. It was established that in a 2.00 M solution, 0.015 M in bisulfate ion, there is an average of one sulfate group per zirconium and two sulfate groups per zirconium at a bisulfate concentration of 0.2 M. The fluoride complexes of zirconium in 2.00 M $HClO_4$ were found to be by far the most stable of any of the complexes studied. Valued for the equilibrium quotients for reactions involving complexing of zirconium by one, two and three fluoride ions were obtained. At a hydrofluoric acid concentration of 2×10^{-5} M, there is an average of one fluoride group per zirconium; at 3×10^{-4} M, an average of 2 fluoride ions per zirconium and at 10^{-2} M hydrofluoric acid an average of three fluorides attached to each zirconium. The oxalate complex of zirconium is very stable even in 2 M $HClO_4$, whereas the next three members of the aliphatic, dibasic acids show little tendency toward complexing. Chloride and nitrate ions form only weak zirconium complexes of nearly equal stability. AECD 2272

PB 95771

Davidson, W. L. and others.

Neutron diffraction analysis of NaH and NaD. n.d. 9p drawing, graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Neutrons—Diffraction 2. Atomic Power—Research 3. MDDC 842

PB 95770

Davis, R. E. and others.

Nucleon bombarded geranium semiconductors, II. n.d. 6p graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Germanium—Conductivity 2. Neutrons—Intensity 3. Siegal, S. 4. Atomic power—Research 5. AECD 2054

PB 95783

Dempster, A. J.

Alpha-ray-emitting isotope in samarium. Feb 1948. 2p graph (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

The previously reported mass assignment of the alpha-ray-emitting isotope in samarium is shown to be unreliable. Preliminary experiments indicate that it is at mass 152, rather than mass 148. ACED 1809

PB 96372

Du Pont de Nemours, E. I., Co., Inc., Jackson Laboratory, Wilmington, Del.

Chambers works process for the recovery of fluorine cell electrolyte ($KF \cdot 2.3HF$) at east area. Sep 1944. 4p table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

Procedures, equipment plant scale, and personnel hazards are described; the process is essentially a settling and decantation operation. AECD 2330

PB 95759

Eisner, E. and Sachs, R. G.

Note on angular distributions in nuclear reactions. n.d. 5p (Limited supply mimeo $.10)

UNIVERSITY OF CALIFORNIA LIBRARY

(Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Nuclear reactions 2. Atomic power—Research 3. MDDC 1029

PB 95359

Engelkemeir, D. W.

2.5 minute Ba daughter of Cs^{137}. Apr 1948. 8p graphs Mi $1.25 Ph $1.25 (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

An isomeric state of stable Ba^{137} which decays by δ-emission to the ground state with a half-life of 2.5 minutes has been discovered. This metastable state is formed by β-decay of Cs^{137}. The Ba^{137} δ has an energy of 0.75 Mev and is 13% internally converted giving rise to ~0.7 Mev conversion electrons and K X-rays. AECD 2125.

PB 95745

Fermi, E. and Marshall, L.

On the interaction between neutrons and electrons. Jun 1947. 24p drawings, tables (Limited supply mimeo $.15) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.15)

The possible existence of a potential interaction between neutron and electron has been investigated by examining the asymmetry of thermal neutron scattering from xenon. It has been found that the scattering in the center of gravity system shows exceedingly little asymmetry. Assuming an interaction of a range equal to the classical electron radius, the depth of the potential well has been found to be 300 ±5000 eV. This result is compared with estimates based on the mesotron theory according to which the depth should be 12000 eV. It is concluded that the interaction is not larger than that expected from the mesotron theory, that however no definite contradiction of the mesotron theory can be drawn at present, partly due to the possibility that the experimental error may have been underestimated, and partly due to the indefiniteness of the theories which makes the theoretical estimate uncertain. MDDC 1183.

PB 95773

Friedlander, Herbert N. and others.

New radio isotope of tantalum produced by slow neutron irradiation. Aug 1946. 3p graph (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Radioisotopes—Production 2. Tantalum—Radioactivity 3. Neutrons—Radioactivity 4. Atomic power—Research 5. MDDC 732

PB 96431

Ghiorso, A. and others.

Artificial collateral chains to the thorium and actinium families. n.d. 3p table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

Two new series of alpha particle emitting radioactive elements produced and identified; one is a "collateral" branch of the actinium (4n +3) radioactive family, the other is collateral to the thorium (4n) family; early members lie on the neutron deficient side of beta stability; produced in high yield by irradiation of thorium with deuterons of energy about 80 Mev in the Berkeley 18-inch cyclotron. AECD 2166

PB 95778

Goldblatt, M. and others.

Half-life of tritium. n.d. 1p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Tritium 2. Atomic power—Resrarch 3. MDDC 1229

PB 96384

Goldberger, M. and Ginsburg, M.

Properties of crystals in neutron diffraction experiments. Dec 1944. 13p (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The energy distribution in a beam of neutrons emanating from a thermal column is discussed. Using this distribution, expressions are derived for average values of the index of refraction, the extinction coefficient, depth of penetration, critical angle, and reflectivity. Curves of reflectivity as a function of index of refraction and glancing angle, as well as curves of the average reflectivity as a function of these same quantities are given. MDDC 1037

PB 96370

Hadley, James and others.

Proton angular distribution for 90 mev neutron-proton scattering. Nov 1947. 4p graph (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

The angular distribution of the recoil protons in neutron-proton scattering at 90 Mev has been measured for angles between 5° and 65° from the direction of the neutron beam. Results are plotted, transposed into the center of mass system. MDDC 1580

PB 95756

Hughes, D. J. and others.

Neutron polarization. n.d. 2p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Neutrons—Polarization 2. Atomic power—Research 3. MDDC 849

PB 95762

Hughes, D. J. and Eggler, C.

Reaction He^3 (n.p)H^3 and the neutrino mass. Sep 1947. 3p graph (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Neutrinos—Scattering 2. Atomic power—Research 3. MDDC 1516

PB 95782

Inghram, Mark C. and others.

Abundance of the samarium isotopes. Sep 1947. 2p table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Samarium—Isotopes 2. Atomic power—Research 3. MDDC 1422

PB 95766

Inghram, Mark G. and others.

Mass spectrometric study of fission element 43. Sep 1944. 2p graphs (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Elements—Analysis 2. Element 43 (Trade name) 3. Fission 4. Spectographic analysis 5. Atomic power—Research 6. MDDC 1460

PB 95699

Jensen, Erling N. and others.

Relative energies of the gamma radiations from Co^{60} and Zn^{65}. n.d. 2p graph (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Gamma rays—Energy measurements 2. Co^{60} (Gamma rays) 3. Zn^{65} (Gamma rays) 4. Atomic power— Research 5. MDDC 1595

PB 95777

Jungerman, J. and Wright, S. C.

Fission excitation functions. Jun 1947. 6p graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Fission theory 2. Atomic power—Research 3. MDDC 1679

PB 94890

Katz, Elaine J. and Nickson, J. J.

Biochemical studies on workers exposed to beryllium. Feb 1948. 10p tables Mi $1.25 Ph $1.25 (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

(1) Clinical laboratory studies of workers exposed to varying amounts of beryllium were carried out for a period of one year in the hope of detecting and evaluating systemic subclinical metal poisoning. (2) Individual abnormalities were found with thymol turbidity, cephalin cholesterol, urine coproporphyrin, urine pigments, and serum bilirubin determinations. None of the tests showed consistent elevation. (3) The interpretation of results must be largely on an individual rather than a statistical basis and must be combined with carefully kept case histories. This is expecially important where exposures may be both multiple and minimal in amount. AECD 2015

PB 95764

Katzin, Leonard I. and Pobereskin, M.

Isotopes Os^{185} and Os^{193}. Jan 1948. 8p graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The half-life of Os^{193} is shown to be 15.0 days, decay being be emission of a beta particle with range less than 35 milligrams per square centimeter of aluminum (energy not more than 0.165 Mev). A highly converted gamma ray of about 0.13-Mev energy is probably emitted at each disintegration, producing x rays in large abundance. Os^{185} decays by orbital capture with a half-life of 100 days. A gamma ray of 0.75 mev is probably emitted at each event. The relative cross sections for pile (slow) neutron capture of the isotopes Os^{184}, Os^{190}, and Os^{192} have been estimated as 80:3.5:1, on the basis of measurements on the daughter activities. AECD 1837.

PB 95801

Kelly, E. L. and Wiegand, Clyde.

Fission of elements from Pt to Bi by high energy neutrons. Aug 1947. 6p diagrs, graphs, table (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn., Mimeo: $.10)

The neutron beam of the 184-inch cyclotron has been used to produce fission in elements from Pt to Bi. The fission yields relative to thorium for 90 Mev neutrons are bismuth 0.021, lead 0.0062, thallium 0.0036, mercury 0.0027, gold 0.0024, and platinum 0.0011. Yield curves for reduced neutron energies were determined. Significant differences in the fission yields of the abundant lead isotopes were found. The yields relative to thorium are Pb^{206}0.0078, Pb^{207}0.0113, and Pb^{208}0.0032. With 90 Mev neutrons the fission fragment ionization relative to thorium was 0.8 for bismuth and ranged down to about 0.7 for gold. MDDC 1353

PB 95379

Klema, Ernest D.

Continuous purification of hydrogen and argon-hydrogen gas mixtures. Jan 1945. 6o drawings, graphs Mi $1.25 Ph $1.25 (Limited supply mimeo $.10) (Also available from U. S. Atomic

Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

A method for the continuous convection-current purification of hydrogen and argon-hydrogen gas mixtures is described. Three substances have been used successfully as purifying agents. The electron drift velocity in argon-hydrogen mixtures should be high compared to the drift velocity in pure argon. AECD 2157

PB 85023

Kopfermann, Hans and others.

Physics of the electron shells. 1948. 134p (Text in German) Mi $5.50 Ph $17.50 Mimeo: $3.00

1. Electron shells—Germany 2. U. S. Field Information Agency, Technical

PB 95767

Lindner, Manfred and Perlman, I.

Neutron-deficient isotopes of rhodium and palladium. Feb 1948. 3p table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

A 9-hour palladium activity assigned to mass 101 and 4.0 day activity assigned to mass 100 have been identified. AECD 1839.

PB 95780

Lindner, M. and Perlman, I.

Neutron deficient isotopes of tellurium and antimony. n.d. 4p table (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Antimony 2. Tellurium 3. Neutrons—Research 4. Isotopes—Determination 5. Atomic power—Research 6. MDDC 1759

PB 95420

Loftfield, R. B.

The preparation of carbon-fourteen labelled hydrogen cyanide, alanine, and glycine. Jun 1947. 8p tables Mi $1.25 Ph $1.25

1. Hydrocyanic acid 2. Radioactive substances—Production 3. Carbon—Isotopes 4. Atomic power—Research 5. MDDC AEC ID Circ. 8

PB 95765

McMillan, Edwin M. and York, Herbert F.

Absolute cross section for the reaction $C^{12}(n,2n)C^{11}$ at 90 mev. Oct 1947. 4p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

The cross section for the reaction $C^{12}(n,2n)C^{11}$ has been evaluated by finding the activity induced by a measured flux of 90 Mev neutrons; the value found is $(0.025 \pm 0.005) \times 10^{-24}$ cm^2. MDDC 1463.

—82278

PB 95369

Maxwell, E. S.

Some observations on the basic chemistry of plutonium. Oct 1944. 4p tables Mi $1.25 Ph $1.25 (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

On prolonged heating in dilute nitric acid (0.5M to 6.8M) a considerable amount of Pu^{+4} is oxidized to Pu^{+6}. Precipitation of the plus three plutonium oxalate is complete in fifteen minutes. Oxidation of Pu^{+4} to Pu^{+6} by bromine is quantitative at 105°C after 1/2 hour; at 50°C the rate of oxidation is slow, but measurable. At room temperature the rate is too slow to measure. A method of converting $PuCl_3$ to $Pu(NO_3)4$ is given. A solubility of $NaPuO_2Ac_3$ increases with temperature, the value at 25°C being 19.5 g/l and that at 95°C, 37.5 g/l. Supersaturation was observed on slow cooling of a saturated solution. AECD 2134.

PB 95700

Mayer, M. G. and Sache, R. G.

Binding energy of the triton. Jul 1947. 1p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Tritons—Magnetic moments 2. Atomic power—Research 3. MDDC 1426

PB 95757

Mayer, Maria G.

On closed shells in nuclei. Feb 1948. 5p tables (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Nuclei—Reactions 2. Atomic power—Research 3. AECD 1818

PB 95755

Monk, G. W. and others.

9-centimeter trochotron. Nov 1947. 4p diagrs (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

1. Trochotron 2. Atomic power—Research 3. AECD 1977

PB 95421

Morgan, G. William.

Gamma and beta radiation shielding. Jan 1948. 24p photos, tables, graphs Mi $2.00 Ph $3.75

1. Radioactivity—Protection 2. Atomic power—Research 3. MDDC AEC ID Circ. B-3

PB 94843

Nikuradse, A. and others.

Vorschlage zür Prüfung des Beladungszustandes von Aktivkohle. (Filtereinsätzen). (Proposals for

testing charged activated carbon). n.d. 4p (Text in German) Mi $1.25 Ph $1.25

1. Nuclear physics—Germany 2. Carbon—Tests—Germany 3. Carbon, Activated 4. Berlin. Technische Hochschule Laboratorium für Elektronen und Ionenlehre

PB 95713

Norris, L. D. and Ingram, M. G.

Half-life of carbon 14. n.d. 16p drawings, graphs, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

By determining the specific activities of two mass spectroscopically analyzed samples of barium carbonate containing C^{14}, the half-life of the C^{14} was found to be 5100 ± 200 years. In order to determine the relative abundance of C^{12}, C^{13} and C^{14}, the $C^{14}O_2$ was roasted from the barium carbonate and introduced into the mass spectrometer. Weighed portions of the barium carbonate were subsequently counted in a low absorption beta counter. Details of the analysis, weighing and counting are given. MDDC 1403

PB 95775

Peed, W. F. and others.

X-ray spectrum of element 43. Jan 1947. 15p photos, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

1. Elements—Analysis 2. Element 43 (Trade name) 3. Spectra, X-ray 4. Fission 5. Atomic power—Research 6. MDDC 1124

PB 95373

Penneman, R. A.

Effects of radiation on aqueous solutions of carboxylic acids. 1946. 5p tables Mi $1.25 Ph $1.25 (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

Irradiation of aqueous solutions of oxalic acid, $(COOH)_2$, with 2.5 Mev X-rays for exposures of 10^6 roentgens causes a decrease in the number of both reducing and acid equivalents. Solutions of formic acid, HCOOH, show similar decreases under deuteron and electron irradiation. Approximate values of G (molecules converted per 100 ev) for oxalic acid range from 4 to 6; for formic acid the values are 2.5 for electrons and 1.7 for deuterons. AECD 2136.

PB 95798

Present, R. D. and others.

Liquid drop model for nuclear fission. n.d. 3p (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn., Mimeo: $.05)

1. Fission fragments—Energy spectra 2. Nuclear theory 3. Atomic power—Research 4. MDDC 231

PB 96419

Price, George R.

Fluorescence studies of plutonium, neptunium, and americium. n.d. 15p graphs, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

A number of compounds of plutonium, neptunium, and americium were tested for luminescence. The conditions employed included irradiation with visible and infrared light, dry ice and liquid nitrogen temperatures, and solution in organic solvents and fused salts; a special search was made for infrared resonance fluorescence of the plutonyl ion. In no case was conclusive evidence of luminescence found. MDDC 1666

PB 95794

Rall, Wilfrid

Mass assignments of some radioactive isotopes of Pd and Ir. May 1946. 4p photos (Limited supply mimeo $.05). (Also available from U. S. Atomic Energy Committion, Oak Ridge, Tenn. Mimeo: $.05)

1. Radioisotopes—Determination 2. Atomic power—Research 3. AECD 1959

PB 95371

Rogers, L. B. and others.

Polarography with solid electrodes. Nov 1947. 16p graphs, tables Mi $1.75 Ph $2.50 (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

Mixtures of ions which react rapidly with mercury usually cannot be analyzed polarographically with the dropping mercury electrode. However, on the basis of experiments with silver ion these polarographic analyses appear to be feasible using a platinum microelectrode and the usual automatic recording technique. The effect on the half-wave potential and the diffusion current of using different rates of polarization, larger electrode areas, and stirring have been examined. Under controlled conditions, the precision of the measurements is somewhat lower than for the dropping mercury electrode. AECD 1876

PB 96388

Ross, Sydney

Comparison of methods of obtaining surface area of crystalline solids from vapor adsorption isotherms. Jan 1948. 13p (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

Low temperature ethane adsorption isotherms on NaCl and KCl crystals, showing a first-order phase transition, are described in the monolayer region by two equations of the form $\pi(\sigma - \sigma_0) = i\,RT$, where σ_0 is the incompressible area per molecule for each of the two phases and i is an inverse function of

the lateral molecular cohesion in each of the two phases. It is found that an agreement in the values for the specific surface of the solid with the specific surface obtained by the BET method can be obtained when σ_0 has a simple dependence on the underlying crystal lattice and the state of the adsorbed monolayer. The nature of this dependence is illustrated for the isotherms in question. The relation between the values of σ_0 thus deduced and the cross sectional area required for use with the BET method is pointed out. A comparison of results obtained for specific surface, by various ways that have been proposed for treating vapor adsorption data, is included and the significance of the findings discussed. MDDC 1765

PB 96373

Rothstein, Aser

Some procedures for the preparation of highly purified adenosine triphosphate. n.d. 3p tables (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05)

With curare; preparation of adenosine triphosphate from yeast; preparation of adenosine triphosphate containing radioactive phosphorus; purity of various adenosine triphosphate preparations; phosphates; barrium; pentose. The absorption spectrum of A.T.P. is shown. MDDC 1561

PB 95793

Sidhu, S. S.

Transmission of monoenergetic slow neutrons through solid solutions and mechanical mixtures of TiC and WC. Oct 1947. 5p photos, graph, tables (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn., Mimeo: $.05)

1. Neutrons—Transmission 2. TiC (Mixture) 3. WC (Mixture) 4. Atomic power—Research 5. MDDC 1489

PB 96382

Staub, H.

The neutron spectrum of boron bombarded by polonium-alphas. n.d. 7p graphs (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

The neutron spectrum from the disintegration of boron by α particles is measured using the technique of the pulse height method in a hydrogen filled ionization chamber. The spectrum shows a broad distribution probably extending to about 6 MeV with a maximum at about 3 MeV. The average neutron energy is about 2.3 MeV. MDDC 1400

— 62278

PB 95716

Stern, Martin O.

Masses of the heavy isotopes. Mar 1948 12p diagrs, graph, tables (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10)

Radioactive decay data are used to calculate the atomic masses of the heavy isotopes, A>202. The data have been critically surveyed; in some cases, they have been supplemented by construction of tentative energy level schemes or by estimates of decay energies. With the adoption of certain assumptions, a connection between the different radioactive families is made possible. The masses thus obtained have been tabulated and plotted. A certain regularity and periodicity in the plot is observed. From atomic weight 210 on, the Wezsaecker-Fermi formula is found to become increasingly unsatisfactory for the calculation of the masses, results deviating by as much as 0.020 mass units from those obtained by experimental data. AECD 1902

PB 95797

Studier, Martin H. and Hyde, Earl K.

New radioactive series: Protactinium series. Oct 1947. 29p graphs (Limited supply mimeo $.15) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn., Mimeo $.15)

The existence of a branch of the uranium-radium series consisting of a whole series of isotopes is reported in this paper. This new series was produced by a $d,4n$ and an $\alpha,5n$ (with probably some contribution from an $\alpha,6n$) reaction in bombardment of thorium metal. The isotopes of the new "protoactinium" series (name suggested from its first number) are listed. MDDC 1567.

PB 95654

U. S. Atomic Energy Commission, Isotopes Division.

Availability of processed radioisotopes. Aug 1948. 4p tables Mi $1.25 Ph $1.25

1. Radioisotopes 2. Atomic power—Research 3. MDDC AEC ID E-29

PB 95653

U. S. Atomic Energy Commission, Isotopes Division.

Isotope-labeled compounds—C14,, SS 35, deuterium. Sep 1948. 2p Mi $1.25 Ph $1.25

1. Atomic power—Research 2. Isotopes 3. Deuterium 4. MDDC AEC ID E-31

PB 4687s2

I. G. Farbenindustrie A. G.

Production of buna: Individual articles on synthetic rubber. Nov 1945. 4p (Text in German and English) Mi $1.25 Ph $1.25

Supplement 2 to PB 4687

This report may not reproduce well

I. Joint Intelligence Objectives Agency 2. Micro FIAT R-10, Index

PB 73430s

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Flow sheets and lay-out drawings for various sections of the 'Reppe' Plant for buna production at Ludwigshafen. Abstract. 1940-1946. 3p Mi $1.25 Ph $1.25

Supplement to PB 73430

I. Micro FIAT M 146, Frames 3637-3800, abstracts

PB 74732s

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

The following reports are from the files of the Buna Prüfstelle located in Bau 178. They deal with the testing of Buna fillers and other materials used in the manufacture and use of Buna. Abstract. 1935-1944. 7p Mi $1.25 Ph $1.25

Supplement 1 to PB 74732

I. Micro FIAT M 153, Frames 8828-9595, abstract

PB 96847

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

The influence on the properties of Buna S of the quantity of diproxide added, and of the timing of the addition. 1940. 21f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 96847s for abstracts. 2p. Mi $1.25 PB $1.25

I. Buna S (Trade name) 2. Micro BIOS FD 1400/48, Frames 1-20

PB 95215

I. G. Farbenindustrie A. G., Schkopau, Ger.

Cold bonding of Perbunan and Buna S with metal, Plexiglas, laminated hard glass and wood. Films and adhesives in safety glass. 1944. 16f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 95215s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Adhesives—Rubber to metal—Germany 2. Adhesives—Rubber to wood—Germany 3. Adhesives—Rubber to plastics—Germany 4. Adhesives—Rubber to glass—Germany 5. Buna S (Trade name) 6. Perbunan (Trade name) 7. Glass, Safety—Manufacture—Germany 8. Micro BIOS FD 2426/47, Frames 1-14

—62278

PB 95576

I. G. Farbenindustrie A. G., Schkopau, Ger.

Examination of the suitability of Buna rubber, type S/III. 1940-1944. 166f (Text in German) Mi $6.25 Enl Pr $22.50

See PB 95576s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Rubber, Buna—Evaluation—Germany 2. Buna S 3 (Trade name) 3. Micro BIOS FD 2243/47, Frames 1-165

PB 96766

I. G. Farbenindustrie A. G., Schkopau, Ger.

Experiments and tests on Igelit PC and PCU fibres, films, etc. 1940-1944. 177f (Text in German) Mi $6.50 Enl Pr $23.75

See PB 96766s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Igelit PC (Trade name) 2. Igelit PCU (Trade name) 3. Micro BIOS FD 2283/47, Frames 1-176

PB 96772

I. G. Farbenindustrie A. G., Schkopau, Ger.

Igelit PCU plant: PCU tests. 1943. 38f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 96772s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Igelit PCU (Trade name) 2. Micro BIOS FD 2289/47, Frames 1-37

PB 91496

I. G. Farbenindustrie A. G., Schkopau, Ger.

Monthly Buna production reports, May 1942-Nov 1944. 1942-1944. 399f (Text in German) Mi $9.00 Enl Pr $52.50

No abstract available

I. Rubber, Buna—Production—Germany 2. Micro BIOS FD 2198/47, Frames not numbered correctly

PB 95583

I. G. Farbenindustrie A. G., Schkopau, Ger.

Notes on the management and equipment of the Schkopau Buna works. 1937-1944. 86f (Text in German) Mi $3.75 Enl Pr $12.50

See PB 95583s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Rubber, Buna—Production—Germany 2. Micro BIOS FD 2196/47, Frames 1-85

PB 96779

I. G. Farbenindustrie A. G., Schkopau, Ger.

Sulphur containing plasticizers for Igelit. 1944. 28f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 96779s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Igelit (Trade name) 2. Plasticizers—Germany 3. Micro BIOS FD 2318/47, Frames 1-27

PB 95584

I. G. Farbenindustrie A. G., Schkopau, Ger.

Travellers' reports relating to rubber regeneration. 1937-1942. 8f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95584s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Rubber, Synthetic—Uses—Germany 2. Rubber, Reclaimed—Uses—Germany 3. Micro BIOS FD 2703/47, Frames 1-7

PB 95400

Jaray, F. F. and others.

Investigation concerning rubber and plastic lining. Apr 1947. 26p tables Mi $2.00 Ph $3.75

Part of Appendix II is in German

1. Linings, Plastic—Germany 2. Linings, Rubber—Germany 3. Clouth, Franz, Rheinische Gummiwarenfabrik A. G., Cologne, Ger. 4. I. G. Farbenindustrie A. G., Leverkusen, Ger. 5. BIOS FR 1805, Item 22

STRUCTURAL ENGINEERING, INCLUDING BUILDING MATERIALS

PB 96347

Ahlberg, Carl-Fredrik

Bostadens funktioner och utformning. (Functions and character of different types of dwellings. Preliminary studies and proposal for a program of research. 1945. 67p (Text in Swedish) Mi $3.00 Ph $8.75

1. Housing—Sweden 2. Svenska. Statens Kommitté för Byggnadsforskning Institutet. Meddelanden. 9

PB 96886

Armour Research Foundation, Chicago, Ill.

Standardized lathing and plastering practices. Dec 1948. 282p photos, drawings, graphs, tables Mimeo: $3.50

1. Lathes—Manufacture 2. Plaster—Manufacture 3. OTS IRDD Proj 90-514D 4. OTS IRDD Proj Contract Cac-47-18

PB 97122

Forkner, H. R. and others.

Motar bond characteristics of various brick. Engineering experiment station series no. 70. Nov 1948. 53p graphs, table (Limited supply mimeo $.25) (Also available from Virginia Polytechnic Institute, Blacksburg, Virginia $.25)

1. Brick industry 2. Virginia Polytechnic Institute. Blacksburg, Va.

PB 96341

Gemmel, Chr. and Tengvik, Nils.

Om kondensation och annan fuktbildning i byggnader. (Concerning moisture and other formation of moisture in buildings). 1944. 13p diagrs (Text in Swedish or English) Mi $1.75 Ph $2.50

1. Buildings—Sweden 2. Condensation—Sweden 3. Moisture—Sweden 4. Svenska. Statens Kommitte för Byggnadsforskning Institutet. Rapport 1

PB 96491

Gt. Brit. Dept. of Scientific and Industrial Research. Building Research Board.

Report of the Building Research Board with the report of the Director of Building Research for the years 1940-1945. 1948. 140p photos, drawing, tables Mi $5.50 Ph $17.50

1. Building—Research—Gt. Brit.

PB 96345

Karlen, Ingvar

Byggnadsindustriens rationalisering. (Rationalization of the construction industry). 1945. 116p (Text in Swedish or English or German) Mi $4.75 Ph $15.00

1. Construction industry—Sweden 2. Svenska. Statens Kommitté för Byggnadsforskning Institutet. Meddelanden. 7

PB 96343

Svenska. Statens Kommitte för Byggnadsforskning Institutet.

Fuktproblem inom byggnadstekniken. (Problem of moisture in construction work. Discussion at the conference of 23 April 1945). 1945. 36p (Text in Swedish) Mi $2.25 Ph $5.00

1. Construction—Sweden 2. Svenska. Statens Kommitté för Byggnadsforskning Institutet. Rapport 5

PB 96344

Svenska. Statens Kommitté för Byggnadsforskning Institutet.

Om vilotryck vid jordtrycksberäkningar. (Static pressure with respect to calculations of earth pressure. Discussions at the conference of 28 May, 1945). 1945. 20p diagrs (Text in Swedish) Mi $1.75 Ph $2.50

1. Pressure, Earth—Sweden 2. Svenska, Statens Kommitté för Byggnadsforskning Institutet. Meddelanden. 6

PB 96331

Tengvik, Nils

Byggnadsforskningen i Sverige. (Construction research in Sweden. A discussion). 1945. 233p (Text in Swedish) Mi $8.25 Ph $30.00

1. Construction—Research—Sweden 2. Svenska. statens Kommitté för Byggnadsforskning Institutet. Meddelanden 1

PB 96677

U. S. Housing and Home Finance Agency.

Design data—bedrooms. (one in a series of reports dealing with results of detailed studies and surveys of family living requirements and

and public acceptance factors related to housing design). Dec 1947. 9p tables Mi $1.25 Ph $1.25 Also available from U. S. Housing and Home Finance Agency, Washington, D. C.

1. Housing—Design 2. HHFA TP 5

PB 96683

U. S. Housing and Home Finance Agency.

HHFA technical bulletin no. 1. Lower costs through better codes: Housing research: Insulation of concrete floors: Earth constructions. Nov 1947. 34p drawings Mi $2.25 Ph $5.00 Also available from U. S. Housing and Home Finance Agency, Washington, D. C.

1. Codes, Building 2. Housing—Research 3. Floors, Concrete—Insulation 4. HHFA TB 1

PB 96684

U. S. Housing and Home Finance Agency.

HHFA technical bulletin no. 2: Current progress in code improvement: Planning the house: Before designing: Wood roof trusses for small dwellings: Crawl spaces: Winter building methods. Jan 1948. 58p photos, drawings, diagrs, tables Mi $1.75 Ph $7.50 Also available from U. S. Housing and Home Finance Agency, Washington, D. C.

1. Codes, Building 2. Houses 3. HHFA TB 2

PB 96685

U. S. Housing and Home Finance Agency.

HHFA technical bulletin no. 3: Insulation, where and how much by Laurence Shuman: Basement vs no basement pt. 1: Cost reduction through functional requirements: Self siphonage of fixture traps: Modular coordination. Mar 1948. 58p drawings, tables Mi $2.75 Ph $7.50 Also available from U. S. Housing and Home Finance Agency, Washington, D. C.

1. Insulation—Temperature characteristics 2. Insulation—Methods 3. Basements 4. HHFA TB 3

PB 96686

U. S. Housing and Home Finance Agency.

HHFA technical bulletin no. 4: Septic tank studies: Basement vs no basement pt. 2: What to do about condensation by E.R. Queer and E. R. McLaughlin May 1948. 30p drawings tables Mi $2.00 Ph $3.75 Also available from U. S. Housing and Home Finance Agency, Washington, D. C.

1. Septic tanks 2. Basements 3. Condensation—Buildings 4. HHFA TB 4

PB 96688

U. S. Housing and Home Finance Agency.

HHFA technical bulletin no. 6: Racking loads and resistance to them in dwelling construction by Ralph R. Britton: Outlook for modular coordination and standardization, by Leonard G. Haeger: Attic condensation in tightly built attics. Sep 1948. 50p drawings, diagrs, graphs, tables Mi $2.50 Ph $6.25 Also available from U. S. Housing and Home Finance Agency, Washington, D. C.

1. Winds 2. Modular system (Building) 3. Woods—Stresses 4. Condensation 5. HHFA TB 6

PB 96678

U. S. Housing and Home Finance Agency.

Physical properties and fabrication details of experimental honeycomb-core sandwich house panels. Feb 1948. 25p photos, drawings, tables Mi $2.00 Ph $3.75 Also available from U. S. Housing and Home Finance Agency, Washington, D. C.

This report, which covers developmental work and test data on honeycomb-core panels, and methods of fabrication and erection of such experimental sandwich panels for an outdoor test structure, has been prepared by the staff of the U. S. Forest Products Laboratory with the assistance of the Technical Staff of the Housing and Home Finance Agency. The experimental sandwich unit was designed not to meet conventional house requirements as to floor plan, architecture, or general livability, but was for the purpose of testing by weathering various types of sandwich material. For this reason, a simple rectangular floor plan was adopted, and the structure oriented on its site so that the two long sides front due south and north to get maximum and minimum exposure to sunlight and weather conditions. A flat roof was selected because it creates more severe insulation and condensation conditions than a pitched roof. HHFA TP 7

PB 96681

U. S. Housing and Home Finance Agency.

Properties of four experimental flush-type doors. (Including a tentative test procedure). Technical paper number 10. Aug 1948. 8p photos, diagrs Mi $1.25 Ph $1.25 Also available from U. S. Housing and Home Finance Agency, Washington, D. C.

Flush-type doors of four experimental constructions submitted for test by manufacturers were found to be at least equal in most properties for which they were tested to a conventional house door. Tests made included racking perpendicular and parallel to the plane of the door, falling-ball impact, exposure to cycles of high and low relative humidity, a warping test, and a water-immersion test. Experimental doors tested included one with a balsa core and plywood facings, one with a fiberboard core of egg-case-filler construction and hardboard facings, and one with a corrugated fiberboard core and hardboard facings, and one with a core consisting of sections of fiberboard tubing and plywood facings. All had solid wood edge frames. They were compared in the tests with a conventional door with five cross panels. The experimental doors were superior in stiffness, as determined by the racking tests, to conventional door. The doors with balsa and corrugated fiberboard cores were slightly superior to the conventional door in the impact test, but the results with doors having cores of the egg-case-filler fiberboard construction and fiberboard tubing were not so favorable. In resistance

in cyclic humidity exposure, warping, and water immersion, the experimental doors were in general as good as the conventional door. HHFA TP 10

TEXTILES AND TEXTILE PRODUCTS

PB 95019

Barmag at Remscheld—Lenen and others.

Artificial silk. 1947. 9p Mi $1.25 Ph $1.25

I. Silk, Synthetic—Germany

PB 96675

Britton, Ralph R.

Condensation in walls and roofs. Technical papers 1, 2 and 3. Jul 1948. 78p drawings, maps, tables Mi $3.50 Ph $10.00 Available from U. S. Housing and Home Finance Agency, Washington, D. C.

These reports were written in cooperation with the U. S. National Housing Agency. Office of the Housing Expediter Technical Staff.

This report consists of three papers on the third test program of the National Housing Agency as conducted in the climatometer of the Pennsylvania State College Engineering Research Station, State College, Pa. Paper No. 1 covers visual observations made and psychrometric readings taken during the period Jan 28, 1947 to Mar 5, 1947 on ten full sized wall constructions and six flat roof-ceiling constructions. Paper No. 2 covers text conditions, panel descriptions, observations, and psychrometric readings from March 6 to May 7, 1947 and adds information on vapor permeability properties of sheathing papers, and vapor barriers used in constructing the samples. Paper No. 3 covers test conditions for a new set of 17 wall panels, sets forth panel descriptions, observations, psychrometric readings and other data from May 24 to July 3, 1947. This paper discusses a suggested procedure and possible criteria for determination of acceptability of constructions for water vapor control. See PB 96679 HHFA TP 1, 2, and 3

PB 70054t2

I. G. Farbenindustrie A. G., Wolfen, Ger.

Rapid colorimetric determination of hydrogen sulfide and carbon bisulfide in waste gases. 1948. 12p drawings, tables Available from Research Information Service, 509 Fifth Ave., N. Y. 17, N.Y. at $13.75

Legends in German

Translation 2 of PB 70054

I. Micro FIAT D 13, Frames 949-954, trans.

PB 96300

Jentgen's kunstseide und zellwolle (Jentgen's rayon and staple fibers). No. 1. Mar 1943. No. 2. (Incomplete). 1943.

Journal für die reine und angewandte mathematik. (Journal for pure and applied mathematics). v. 182. 1940. v. 183. 1941. v. 184. 1942. v. 185. 1943. v. 186. (Incomplete). 1944.

Journal für makromolekulare chemie. (Journal of macromolecular chemistry). 3d. Ser. v. 1, Nos. 7-12. 1944. 3d. Ser. v. 2, Nos 1-5. 1944. N.S. v. 155, Nos. 1-12. 1944. 604f (Text in German) Mi $9.00 Enl Pr $80.00

I. Rayon—Periodicals—Germany 2. Fibers, Staple—Periodicals—Germany 3. Mathematics—Periodicals—Germany 4. Chemistry—Periodicals—Germany 5. Micro FIAT 0 62, Frames 7226-7830

PB 95021

Kebl, (Ing) and others.

Vereinigte Glanzstoff—Fabriken A. G., Oberbruch bei AAchen. Jun 1947. 5p (Text in Polish) Mi $1.25 Ph $1.25

I. Cellulose 2. Fabrics, Rayon

PB 95850

Klepzigs Textilzeitschrift. (Klepzigs textile journal). v. 42, Nos. 16-52. Apr-Dec 1939. v. 43, Nos. 1-21. Jan-May 1940. 575f (Text in German) Mi $9.00 Enl Pr $75.00

I. Textiles—Periodicals—Germany 2. Micro FIAT 0 68, Frames 1210-1785

PB 96285

Klepzigs textilzeitschrift. (Klepzigs textile journal). v. 43, Nos. 9-52. 1940. v. 44, Nos. 1-9. 1941. 659f (Text in German) Mi $9.00 Enl Pr $85.00

I. Textiles—Periodicals—Germany 2. Micro FIAT M 28, Frames 4815-5459

PB 97014

Landsberg, M. I. and Winston, Gerald

Relationship between measurements of air premeability by two machines. n.d. 18p drawings, graphs, tables Mi $1.75 Ph $2.50

In this paper is described the derivation of the empirical relationship between two commonly used instruments for determining air permeability, namely the Frazier and Gurley machines. In addition, the limitations of each of the devices are discussed as well as the number of specimens necessary for testing. The correlation has also been determined by consideration of physical constants and pressure differentials, using the empirical data obtained on the Gurley and Frazier instruments operating at a pressure of 0.5 and 1.26 inches of water, respectively, as well as data obtained on the Frazier machine at the same two pressures. The equations derived were $\log Y_F = \log 533.0 - 1.02 \log X_G$, based upon the empirical data alone and $\log Y_F = \log 507.5 - \log X_G$ when the physical constants of the machine were considered. Q MC TSR 35

PB 96548

Lindberg, Joel

Measurement of friction between single fibres. III. The influence of different treatments on the frictional properties of wool fibres. 1948. 12p tables, graphs Mi $1.75 Ph $2.50

This paper is published also in Textile Research Journal, August 1948

Svenska. Meddelanden från Svenska Textilforsknings Institutet Gothenberg. 8.

The friction of wool fibers at different loads has been measured and an equation derived previously for the antiscale friction is tested. The friction at different temperatures has been measured up to 90° C. Both coefficients of friction decrease with increasing temperature, and the change is reversible. The friction at various pH values after treatment with different nonfelting agents has been measured. No appreciable change in the friction was obtained. The friction was measured after different abrasional treatments. In all cases there was an increase in the frictional coefficients.

PB 70054t

Matthes, A.

Analysis of I. G. Farben method for determining the filterability of viscose. 1948. 12p Available from Research Information Service 509 Fifth Ave., N. Y. 17, N. Y. at $22.50

Translation 1 of PB 70054

1. Micro FIAT D 13, Frames 582-591, trans.

PB 97176

Meierhand, Joseph P. and others.

Textile reconnaissance memorandum No. 10. Jun 1945. 2p Mi $1.25 Ph $1.25

1. Flax—Blending with cotton 2. I. G. Farbenindustrie A. G., Griesheim, Ger. 3. QMC TRM 10

PB 96294

Monatschrift für textilindustrie. (Textile monthly). v. 52, Nos. 1-12. 1939. v. 55, Nos. 1-12. 1940. v. 56, Nos. 1-12. 1941. 776f (Text in German) Mi $9.00 Enl Pr $101.25

1. Textiles—Periodicals—Germany 2. Micro FIAT O 86, Frames 1479-2255

PB 96315

Monatszeitschrift für textilindustrie. (Monthly journal for the textile industry). v. 55, Nos. 1-12. 1940. v. 55, Special Nos. 1-3. 1940. v. 56, Nos. 1-12. 1941. v. 56, Special Nos. 1-3. 1941. v. 57, Special Nos. 1-3. 1942. v. 58, Special No. 1. 1943.

Klepzigs textil zeitschrift. (Klepzigs textile journal) v. 46, Nos. 7-14. 1943. 657f (Text in German) Mi $9.00 Enl Pr $85.00

1.Textiles—Periodicals—Germany 2. Micro FIAT CC 119, Frames 6973-7630

PB 96297

Monatsschrift für textilindustrie. (Textile indsutry monthly). v. 57. Jan-Dec 1942. v. 58. Jan-Mar 1943.

Allgemeine Textilzeitschrift. Apr 1943-Jan 1944. 497f (Text in German) Mi $9.00 Enl Pr $65.00

1. Textiles—Periodicals—Germany 2. Micro FIAT O 87, Frames 2256-2753

PB 36547

Speakman, J. B.

Some practical applications of recent research on wool. 1948. 17p tables Mi $1.75 Ph $2.50

1. Wool—Tests—Sweden 2. Svenska. Meddelanden från Svenska Textilforskningsinstitutet. Gothenberg. 7.

PB 74235t2

Vereinigte Glanzstoff-Fabriken A. G., Seehof, Ger.

Determination of the characteristic viscosity of xanthate. Dec 1948. 13p drawings Available from Research Information Service, 509 Fifth Ave., N. Y. 17, N. Y. at $12.50

Legends in German

Translation 2 of PB 74235

1. Exanthates—Viscosity—Germany 2. Micro FIAT D 300, Frames 9650-9656, trans.

PB 74235t

Vereinigte Glanztoff-Fabriken A. G., Obernburg, Ger.

Test of cellulose sensitivity to oxidation in alkaline medium. Nov 1948. 8p graph Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $9.75

1. Micro FIAT D 300, Frames 9990-9995, trans

PB 74264s

Vereinigte Glanzstoff-Fabriken, Obernburg, Ger.

Viscose rayon. Abstract. 1938-1939. 5p Mi $1.25 Ph $1.25

Supplement 1 to PB 74264

1. Rayon, Viscose—Manufacture—Germany 2. Micro FIAT D 295, Frames 5356-6168, abstracts 3. Micro BIOS FDX 193, abstracts

TRANSPORTATION EQUIPMENT

Aeronautics

Engines and Propellers

PB 94204

Essex, Henry A. and others.

Investigation of ice formation in the induction system of an aircraft engine. II. Flight tests. Jun 1946. 23p drawings, graphs, tables Mi $2.00 Ph $3.75

Flight tests were conducted on a twin-engine fighter airplane at pressure altitudes up to 10,000 feet with simulated conditions of moderate, heavy, and excessive rain to determine the increase in enthalpy of the charge air due to the turbosupercharger, to determine the rate of enthalpy increase of the charge air resulting from a sudden increase of engine power, and to compare the conditions that caused induction-system icing in flight with those that resulted in icing of the same carburetor and supercharger inlet elbow in

laboratory tests. The alternate air system reduced the susceptibility to icing by excluding water and by increasing the heat input. The most effective ice protection was found to be obtainable by operating with closed intercooler flap, by timely use of the alternate air system, and by increasing power in order to provide more heat from the turbosupercharger. The effective turbosupercharger heat input was appreciably reduced because complete stoppage of the intercooler cooling-air flow was found to be impossible. The maximum heat rise available at the carburetor deck was not obtained until approximately 3 minutes after engine power was suddenly increased and appeared insufficient to de-ice the induction system quickly enough if serious icing occurred. None of the flight tests resulted in serious carburetor icing and the induction system was found to be susceptible to serious icing only during low power operation at low altitudes with high rates of water ingestion, which indicated that the laboratory-determined conditions for serious icing are conservative. The most serious carburetor air-flow reduction in these tests resulted from heavy impact icing, which blocked the carburetor air scoop and prevented operation of the alternate air valve. NACA E-177.

PB 94122

Evvard, John C. and Moeckel, W. E.

Estimation of the internal-cooling requirements of an aircraft-engine cylinder when using oxygen boost. Nov 1944. 6p graph, table Mi $1.25 Ph $1.25

I. Engines, Aviation—Cooling 2. NACA E-91

PB 94520

Forbes, J. E. and Taylor, E. S.

Method for studying piston friction. Mar 1943. 30p photos, drawings, graphs, tables Mi $2.00 Ph $3.75

I. Pistons—Friction 2. NACA W-37

PB 94366

Gardner, Clifford S. and LaHatte, James A., Jr.

Determination of induced velocity in front of an inclined propeller by a magnetic-analogy method: Feb 1946. 70p diagrs, graphs, tables Mi $3.00 Ph $8.75

The horizontal and vertical components of the induced velocity in front of an inclined propeller in a horizontal stream were obtained by a magnetic-analogy method. The problem was formulated in terms of the linear theory of the acceleration potential of an incompressible nonviscous fluid. The propeller was assumed to be an actuator disk. The horizontal component of the induced velocity was found by a numerical calculation. Numerical calculation of the vertical component, however, was not practicable; therefore the vertical component was obtained from electrical measurements by use of the analogy between the acceleration potential of an incompressible nonviscous fluid and the potential of a magnetic field. An alternative formulation of the problem in terms of the trailing-vortex sheet is shown to be equivalent to the acceleration-potential formulation if the thrust coefficient is assumed so small that the slipstream is not deflected and undergoes no contraction. From the results presented, induced velocities of greater accuracy are shown to be obtainable from a modification of the vortex theory based on the assumption of a constant finite downwash angle of the slipstream. NACA L-154.

PB 94175

Good, J. N. and Brockway, L. O.

Electron and X-ray diffraction investigation of surface changes on nitrided-steel piston rings during engine operation in nitrided-steel cylinder barrels. Mar 1945. 14p photos, graph, tables Mi $1.75 Ph $2.50

New and used nitrided-steel piston rings were examined by electron and X-ray diffraction in a study of the surface changes produced during engine operation. Both new and used rings, examined after degreasing, gave an electron-diffraction pattern consisting of diffuse bands; those from the used rings fell at the usual positions of the bands from polished metal surfaces. After the surface had been disturbed (acid etch, abrasion, etc.), the new ring gave the pattern of α-iron due to dilute solid solutions of the alloying elements, including nitrogen, in α-iron together with small amounts of Fe_3O_4 or γ-Fe_2O_3. The used ring in some cases gave the same pattern in addition to faint lines of γ-iron; the presence of a layer of γ-iron just under the surface is corroborated by the X-ray examination. In other cases, the used ring showed a different pattern, which was presumably that of the coating previously observed but it has not been identified. The occurence of different patterns was due to the discontinuous character of the coating. NACA E-145.

PB 94139

Guentert, Donald C. and Baas, Edmund J.

Effect of carburetor throttle settings on the velocity distribution at the outlet of a vaned and a vaneless supercharger inlet elbow. Sep 1945. 20p photos, drawing, graphs Mi $1.75 Ph $2.50

A study has been made to determine the effect of a carburetor and an inlet elbow on the flow at the supercharger impeller inlet. Tests were conducted on a commercial vaned supercharger inlet-elbow assembly to determine the effect on the velocity distribution at the elbow outlet by varying the carburetor throttle setting from full open to 55° closed. The tests were repeated with the vanes removed to determine their effect on the distortions produced by the carburetor throttle. Tests were also made to compare the static-pressure drop through the vaned and the vaneless elbows. The carburetor throttle setting had a pronounced effect on the velocity distribution at the supercharger inlet. Because of the tendency of the vanes to retain the distortion created by the

throttle, and because of the large wakes produced by the vanes, the velocity profile at the outlet of the vaneless elbow was decidedly more uniform than that of the vaned elbow at all throttle settings. The static-pressure drop through the carburetor and the vaneless elbow was approximately 5 percent less than that through the carburetor and the vaned elbow. The use of vanes in an elbow immediately downstream from a carburetor has an adverse effect on the velocity distribution at the supercharger inlet. NACA E-108.

PB 92583

Haines, A. B.

Comparison of aerofoil data for use in single radius propeller calculations. Jan 1947. 52p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $2.75

This report compares the data derived between 1937 and 1945 for use in propeller performance calculations by Lock's single radius method and in producing generalized charts for the take-off climbing and cruising conditions. The sources of the data were series of full-scale propeller tests in the Royal Aircraft Establishment 24-ft. tunnel, first on a Mercury engine and nacelle and secondly, on a 1,500 h.p. electric motor installation. Model test were also made at the National Physical Laboratory on a model of the Mercury rig with two objects: (i) To show how much scale effect existed between model and full-scale propellers at low tip speed. (ii) To show the amount of body interference present in the Mercury rig. Only the full-scale tests covered a range of tip speeds up to the speed of sound. It is considered that the high tip speed data derived from the 1,500 h.p. motor tests should supersede the earlier data and Figs. 27-52 of the report give these data in forms suitable for use in calculations of the performance of propellers of differing blade number and design under various operating conditions. The principal conclusions resulting from a comparison of the data are as follows: (A) Low tip speed. (i) The increase in Reynolds number from model to full scale delays the stalling incidence by about 1.3 deg. for the RAF 6 section and by over 3 deg. for the Clark Y, thus giving higher C_L max. values. (ii) The minimum C_D values increase with increase in blade thickness from 7.6 to 12.5 per cent. (at 0.7 radius) by 0.004 for RAF 6 and 0.008 for Clark Y sections. (iii) This increase in blade thickness produces a gain of 0.3 in the value of C_L for $C_D = 0.1$ and upwards. For thinner blades, however, the effect of different thicknesses disappears for high C_D values (e.g. 0.4). (iv) The full-scale RAF 6 sectioned blades have a lower C_D min. (by about 0.005) and a higher C_L max. (by about 0.1) than the Clark Y blades. (v) The C_D, C_L data applies satisfactorily to blades of different width, except that C_L max. increases with increasing width. (vi) The root thickness and pitch distributions have a marked effect in determining the onset of the incidence stall. Particularly with thin root sections, the blade angles should be kept moderate at the root, e.g. $\theta_{0.3}$-$\theta_{0.7}$ should not exceed about 17 deg. (B) High tip speed. (i) Increase of blade thickness in general lowers the critical Mach number, and so the effect of thickness on C_D min. becomes more marked at high tip speed. (ii) Except for the thickest propeller C_L and C_B beyond the incidence stall become independent of Mach number. An increase in thickness from 7.6 to 12.5 per cent. leads to a loss of 0.13 in C_L for $C_D = 0.1$ for a tip Mach number of 0.9, compared with the gain of 0.3 for low Mach number. (iii) The RAF 6 section in general retains its advantages and also the effects of the distributions of pitch and thickness at the roots remain similar. The report also contains information on the effects of changes in pitch distribution at the tips, of fitting root fairings and on the corrections needed to allow for the presence of the Mercury nacelle. ARC RM 2188.

PB 94063

Hall, Eldon W.

Theoretical analysis of the performance of a diesel engine-compressor-turbine combination for aircraft. Apr 1945. 23p graphs Mi $2.00 Ph $3.75

A theoretical study was made of a Diesel engine-compressor-turbine combination for aircraft application. The performance characteristics of the compressor and the turbine chosen for the analysis are believed to be attainable on present aircraft equipment. Maximum cylinder pressure, maximum exhaust-gas temperature, and maximum engine speed were limited to values now obtained on spark-ignition engines. The analysis indicates favorable performance characteristics for the proposed power plant for the following combinations of conditions: (a) Extremely high engine inlet-manifold and exhaust-manifold pressures; (b) Very lean fuel-air ratio; (c) Low engine compression ratio compared with conventional Diesel engines to reduce the maximum cylinder pressure to a safe value; (d) Intercooling between the compressor and the engine; (e) Use of turbine power in excess of that required to drive the compressor. The results indicate that it would be possible to obtain much more power per unit displacement volume with this combination than with a spark-ignition engine of the same maximum cylinder pressure and engine exhaust-gas temperature. When the proposed combination was assumed to operate under these conditions, the computed specific fuel consumption at maximum power was lower than that now obtainable with spark-ignition engines operating under a lean-cruise condition. Because of the internal cooling provided by the large quantity of excess air in the proposed system, adequate engine cooling would be considerably easier to obtain than for a conventional Diesel engine. The weight per horsepower output of the combination was calculated to be less than that of a conventional spark-ignation aircraft engine. NACA E-51

PB 94064

Hannum, Richard W. and Zimmerman, Richard H.

Calculations of the economy of an 18-cylinder radial aircraft engine with an exhaust-gas turbine geared to the crankshaft at cruising speed. Dec 1945. 27p graphs, tables Mi $2.00 Ph $3.75

Calculations based on dynamometer test-stand data obtained on an 18-cylinder radial engine were made to determine the improvement in fuel consumption that can be obtained at various altitudes by gearing an exhaust-gas turbine to the engine crankshaft in order to increase the engine shaft work. The calculations indicate that, for turbine and auxiliary supercharger efficiencies of 85 percent, net brake specific fuel consumption of 0.362 pound per brake horsepower-hour at 10,000-feet altitude and 0.325 pound per brake horsepower-hour at 30,000 feet can be obtained by gearing the exhaust-gas turbine to the entire crankshaft and operating the engine at a speed of 2,000 rpm, an inlet-manifold pressure of 40 inches of mercury absolute, an exhaust pressure of 42 inches of mercury absolute, and a fuel-air ratio of 0.063. The reduction in net brake specific fuel consumption that can be obtained if the exhaust-gas turbine supplies all the auxiliary supercharger power and its residual power is transmitted through gears to the engine crankshaft, as compared with the usual combination of geared and turbosupercharging, is approximately 14 percent at 10,000-feet altitude and 21 percent at 30,000 feet. The net brake specific fuel consumption with a geared turbine is a minimum for engine exhaust pressures approximately 25 percent above inlet-manifold pressure and varies only slightly from the minimum for a range of exhaust pressures from 5 to 45 percent above inlet-manifold pressure. NACA E-32.

PB 92588

Hislop, G. S. and Weir, R. H.

Variation of power with height of the Merlin XX engine as determined by flight tests on a Hurricane II. Jan 1942. 24p photos, drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.45

Flight tests were required to determine the variation of power with height of the Merlin XX engine because of the large increase in the rated altitude of present engines compared with those previously tested. This report forms one of a series and deals with the results obtained from the first of the three methods stated below: 1. By measurements of power absorption with constant airscrew conditions at different altitudes using an airscrew locked in pitch. 2. By measurements of absolute performance at low altitude to give complete aerodynamic data for calculation of power at high altitude (known as the Fage method) 3. By the measurement of change of ceiling with a change of weight. The method gives the ratio of full throttle powers at any two altitudes, and in the present tests the ratio of F.S. supercharger gear powers at approximately 33,000 and 19,000 ft. was obtained. Absolute power values were estimated from engine test-bed data supplied by Messrs. Rolls-Royce, Ltd., whilst the change in the airscrew power coefficient was measured by the Royal Aircraft Establishment. It was not practicable to make tests much above 33,000 ft. because of the poor climb performance with the fixed-pitch airscrew and inadequate cooling around the rated altitude. The conclusions reached are as follows: (i) The variation of full throttle power under still air conditions of the Merlin XX engine in high supercharger gear, expressed as a function of density is: b.h.p. $\propto 1.08\sigma - 0.08$. (ii) In locked airscrew tests all high altitude levels should be made on one flight. An electrically operated constant-speed airscrew which can be locked in fixed pitch would be of immense value in simplifying the difficulties involved. (iii) The air intake conditions must be measured very accurately. ARC RM 2212.

PB 94054

Huppert, Merle C. and others.

Effect of oil consumption and piston cooling on knock-limited aircraft-engine performance. May 1944. 13p graphs, tables Mi $1.75 Ph $2.50

Tests of knock-limited performance were conducted on a CFR engine in which 2.5 percent by weight of two different oils and kerosene were mixed, in turn, with S-2 reference fuel. Tests on an Allison V-1710 cylinder were also conducted in which 0 to 6.1 pounds of SAE 50 oil per hour were injected directly into the combustion chamber, and the knock-limited performance of aviation gasoline AN-VV-F-781, Amendment-5, (125 performance number) was determined. The effect of oil cooling of the piston was also investigated. The results are summarized in tables 1 and 2.

TABLE 1.—APPROXIMATE PERCENTAGE DECREASE IN KNOCK-LIMITED POWER FOR EACH INCREASE IN OIL CONSUMPTION OF 0.01 POUND PER HORSEPOWER-HOUR

Oil introduced into combustion chamber	Fuel	Decrease in knock-limited power (percent)	
		Fuel-air ratio	
		0.075	0.10
CFR engine (oil premixed with fuel)[a]			
SAE 60.....	S-2.....	16	8
SAE 10W.....	S-2.....	13	5.5
Kerosene.....	S-2.....	14	5.5
Allison V-1710 cylinder (oil injected into combustion chamber)[b]			
SAE 50.....	AN-VV-F-781, Amendment-5, (125 performance number).	4	2

[a]Indicated basis.
[b]Brake basis.

TABLE 2.—APPROXIMATE PERCENTAGE DECREASE IN KNOCK-LIMITED POWER FOR EACH INCREASE IN OIL CONSUMPTION OF 1 PERCENT OF THE FUEL CONSUMPTION

Oil introduced into combustion chamber	Fuel	Decrease in knock-limited power (percent)	
		Fuel-air ratio	
		0.075	0.10
CFR engine (oil premixed with fuel)			
SAE 60.....	S-2.....	7	5
SAE 10W.....	S-2.....	6	4
Kerosene.....	S-2.....	6	4
Allison V-1710 cylinder (oil injected into combustion chamber)			
SAE 50.....	AN-VV-F-781, Amendment-5, (125 performance number).	2	1.5

NACA E-22.

PB 94067

Imming, Harry S.

Effect of piston-head temperature on knock-limited power. Jul 1944. 20p drawings, graphs Mi $1.75 Ph $2.50

Tests were made in a supercharged CFR engine over a range of fuel-air ratios from 0.058 to 0.120, using S-3 reference fuel, AN-F-28, Amendment-2, aviation gasoline, and AN-F-28 plus 2 percent xylidines by weight. Tests were run at a compression ratio of 7.0 with an inlet-air temperatures of 150° F and 250° F and at a compression ratio of 8.0 with an inlet-air temperature of 250° F. All other engine conditions were held constant. The piston-head temperature was varied by circulation of oil through passages in the crown of a liquid-cooled piston. This method of piston cooling decreased the piston-head temperature about 80° F. The data are not intended to constitute a recommendation as to the advisability of piston cooling in practice. The following results were obtained from this investigation: 1. Near the stoichiometric mixture, the percentage increase in knock-limited indicated mean effective pressure accompanying the decrease in the piston-head temperature of approximately 80° F was from 5 to 18 percent. At a fuel-air ratio of 0.10, the increase was from 0 to 10 percent. 2. Changes in piston-head temperature had no effect on indicated specific fuel consumption or on the general shape of the curves of knock-limited indicated mean effective pressure plotted against fuel-air ratio. 3. The effect of piston cooling on the knock-limited indicated mean effective pressure was greater for AN-F-28, Amendment-2, aviation gasoline and AN-F-28 plus 2 percent xylidines by weight than for S-3 reference fuel. For all but the high fuel-air ratios tested, the decrease in piston-head temperature permitted approximately 30 percent of the increase in knock-limited indicated mean effective pressure that was allowed by an equal decrease in inlet-air temperature. NACA E-35.

PB 94060

Johnson, Robert L. and Anderson, Roy I.

Single-cylinder engine tests of porous chrome-plated cylinder barrels with special bore coatings for radial air-cooled engines. Jan 1946. 24p photos, diagrs, tables Mi $2.00 Ph $3.75

A series of single-cylinder engine tests was run to determine the effect on oil consumption and ring wear of special surface coatings in porous chrome-plated cylinder barrels for radial air-cooled engines. The coating materials were selected on the basis of bearing and lubrication properties and on the applicability of the materials to processing. This work was necessitated by the complications incurred in using standard flat-face compression rings in straight-bore porous chrome-plated cylinder barrels. Straight-bore porous chrome-plated cylinder barrels coated with lead and silver overplates and similar barrels painted with colloidal graphite base paint were tested. Control tests were run with cylinders having no coating. A choke-bore porous chrome-plated cylinder barrel with a silver overplate was tested. Control tests with run with similar cylinders having no overplate. Silver proved to be the most effective surface coating; it reduced the mean specific oil consumption and resulted in decreased ring wear. A coating of colloidal graphite base paint had about the same effect on the mean specific oil consumption and ring wear as the silver overplate; however, this coating did not remain in the pores on the thrust faces of the cylinder bore. Owing to a granular structure the lead plating was not of satisfactory quality and did not decrease oil consumption, although it did reduce ring wear. The lead apparently adversely affected the running-in properties of the assembly, as indicated by the exceptionally high initial oil consumption. The effectiveness of silver as a means of providing a filled porosity was influenced by the catalytic action of the silver on the oxidation of lubricating oil, which resulted in very heavy deposits of lacquer, varnish, or both on the plated surface. These engine deposits serve to fill the pores very well and satisfactorily adhered to the surface during engine operation. The silver, however, did not completely adhere to plateau surfaces at scattered locations in the cylinder tested. NACA E-28.

PB 94057

Johnson, Robert L. and Swikert, Max

Single-cylinder oil-control tests of porous chrome-plated cylinder barrels for radial air-cooled engines. Jan 1946. 28p photos, drawings, graphs, tables Mi $2.00 Ph $3.75

A series of single-cylinder engine tests was run to determine a satisfactory method of reducing oil consumption in radial air-cooled engines with flat-face compression rings as standard parts and

equipped with cylinder barrels salvaged by the porous chrome plating. Tests were conducted using porous chrome-plated cylinders having straight and choke bores with standard flat-face compression rings. These tests were compared with additional tests employing previously used straight-bore porous chrome-plated cylinder barrels with various piston-ring assemblies, including assemblies with taper-face compression rings. The oil consumption was reduced by more than one-half in the tests using the piston assembly with three 1° taper-face compression rings. Slight increases in blow-by accompanied the use of taper-face compression rings but no deleterious effects were observed. The tests reported herein indicate that, when a choke was incorporated in a cylinder, the oil consumption was reduced one-third or more without any apparent undesirable effect on engine performance. The initial oil consumption was appreciably higher in the tests employing previously used cylinders than in the tests using cylinders with a honed finish when tested with the same ring assembly. A heavy bearing area was noted on the top edge of the top compression ring after all the tests in which a piston-ring assembly having a top flat-face compression ring was used, which indicates that the rings were scraping oil into the combustion chamber. NACA E-25.

PB 94441

Katzoff, S. and Finn, Robert S.

Determination of jet-boundary corrections to cowling-flap-outlet pressures by an electrical analogy method. Feb 1944. 24p drawings, graphs Mi $2.00 Ph $3.75

In order to determine jet-boundary corrections to cowling-flap-outlet pressures, corrections to the velocities near a cowling-flap tip have been studied by an electrical-analogy method. The presence of the low-energy air leaving the flap opening was taken into account by so shaping the nacelle model that its outer surface represented the stream surface leaving the flap tip. Copper was found unsatisfactory for use as electrode material. Good accuracy was obtained with chromium-plated copper for tank electrodes and platinum wire for the solution contacts. An 8-percent velocity correction was found for a typical nacelle in the LMAL 16-foot high-speed tunnel, corresponding to a correction of about 0.25 times free-stream dynamic pressure at the flap outlet. The results agreed approximately with the corrections calculated by Lamb's method for an equivalent source-sink ovoid. NACA L-240

PB 94532

Kelley, Bartram

Response of helicopter rotors to periodic forces. Mar 1945. 16p graphs, table Mi $1.75 Ph $2.50

1. Helicopters—Rotors

—62278

PB 94150

Krsek, Alois and Jones Anthony W.

Effect of an aromatic mixture added to two 100-octane fuels on engine temperatures and fuel consumption. Jun 1942. 11p graphs Mi $1.75 Ph $2.50

Tests were conducted with an air-cooled cylinder on two fuels rated at approximately 100-octane number by the C.F.R. aviation method with and without a 40-percent addition of an aromatic mixture. The aromatic mixture consisted of 50 percent toluene, 37.5 percent xylene, and 12.5 percent benzene, the percentage being determined on a volume basis. The data obtained indicate that the aromatic mixture had little or no effect on engine temperatures, indicated mean effective pressure, or indicated specific fuel consumption in the fuel-air ratio range used by present-day aircraft engines. The data also indicate that in the rich region the aromatic fuel in some cases gave a lower specific fuel consumption than did the straight paraffin fuel. NACA E-119.

PB 94530

Leary, W. A. and Jovellanos, J. U.

Study of piston and ring friction. Nov 1944. 70p photos, drawings, graphs, tables Mi $3.00 Ph $8.75

The apparatus used in this investigation permits the isolation of piston and ring friction from total engine friction under actual operating conditions. Friction work has been measured for various piston ring combinations and cylinder surfaces. The effect of scuffing and excess cylinder-wall lubrication on piston and ring friction is reported, and a careful analysis of the changes in friction work during the run-in period is presented. A new technique for obtaining photomicrographs of curved surfaces has been used to make visual comparisons of cylinder-wall roughness. A device for transforming pressure-crank angle indicator diagrams into pressure-volume indicator diagrams are described. NACA W-47.

PB 94533

Livengood, James C. and Eppes, James V. D.

Effect of changing the stroke on air capacity, power output, and detonation of a single-cylinder engine. Feb 1945. 26p drawing, graphs, tables Mi $2.00 Ph $3.75

For this investigation a special single-cylinder test engine was constructed with provision for operation with three different lengths of piston stroke. The cylinder diameter was constant and equal to the intermediate length of piston stroke. The compression ratio and ratio of crank radius to connecting rod length were held constant. Performance tests were made over a wide range of piston speeds and inlet pressures. Detonation limits were established for increasing inlet pressures. It was found that the air capacity and volumetric

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efficiency of the engine were independent of the stroke for any particular piston speed at any particular inlet pressure within the range investigated. This result might be altered if dynamic disturbances develop in the inlet or exhaust systems. With the particular cylinder and operating conditions used, and at one fixed piston speed, the engine could be more highly supercharged without detonation when the shorter strokes were employed. The ratio of indicated power output to air capacity over a wide range of air capacities did not show any significant differences for the the three strokes. Brake mean effective pressure at a constant inlet pressure was found to be progressively lower with the shorter piston strokes for any particular piston speed within the range covered. This is attributed to the greater mechanical friction losses accompanying the higher engine revolutions per minute of the shorter strokes. Calculated friction losses in the main journal and crankpin bearings accounted in part for the differences noted. The differences in brake mean effective pressure with the three strokes were found to be substantially independent of the inlet pressure when supercharging at one fixed piston speed. No differences in pumping losses were noted between the three strokes at any piston speed. NACA W-50.

PB 94176

Manganiello-Eugene J. and Bernardo, Everett.

Cylinder temperatures of two liquid-cooled aircraft cylinders for various engine and coolant conditions. Oct 1945. 43p drawings, graphs, table Mi $2.50 Ph $6.25

As a supplement to an investigation of the cooling characteristics of a multicylinder liquid-cooled engine, tests were conducted with two liquid-cooled cylinders in order to isolate the effects of the various engine and coolant variables on cylinder temperatures and to obtain engine-cooling data required for a fundamental study of the heat-transfer processes in liquid-cooled engines. Cylinder temperatures were obtained for a large range of engine speeds, manifold pressures, carburetor-air temperatures, fuel-air ratios, spark advances, coolant-flow rates, average coolant temperatures, and coolant pressures with water and AN-E-2 ethylene glycol and other ethylene glycol-water mixtures as coolants. The results indicate that the average cylinder temperatures increased nearly linearly with charge-flow rate (air plus fuel) and indicated horsepower, increased a relatively small amount for an increase in carburetor-air temperature, increased rapidly at a constant charge-flow rate as the fuel-air mixture was enriched to a fuel-air ratio of 0.067 and decreased with further enriching, increased practically linearly with an increase in spark advance from 20° to 42° B.T.C. but changed less rapidly from 12° to 20° B.T.C. The average cylinder temperatures also decreased a relatively small amount for an increase in the coolant-flow rate of most of the solutions used, increased nearly linearly with an increase in the average coolant temperature, and increased slightly with an increase in coolant pressure but only at the high cylinder temperatures. In addition, the results showed that the average cylinder temperatures were lower when using water or the more aqueous ethylene glycol solutions than when using AN-E-2 ethylene glycol. The numerical relations obtained between the cylinder temperatures and each of the variables investigated were dependent upon the values of the other engine and coolant conditions under which the particular variable was investigated. NACA E-146.

PB 94156

Manganiello, Eugene J. and others.

Engine tests of pressurized shunt-type cooling systems for a liquid-cooled engine. May 1945. 31p photos, drawings, graphs Mi $2.25 Ph $5.00

Tests have been conducted to determine the performance of two pressurized shunt-type cooling systems for liquid-cooled aircraft engines using a mixture of 30 percent AN-E-2 ethylene glycol and 70 percent water as the coolant. One of the systems (system A) employed an expansion tank typical of those in current use on unpressurized AN-E-2 ethylene glycol systems; the other system (system B) used an expansion tank designed by the Linde Air Products Company and modified for production by the Bell Aircraft Corporation. Neither system incorporated a venturi nor other pressure-boost arrangement at the pump inlet. Coolant-flow rates were determined for both systems over (a) a range of engine speeds at constant pump-inlet pressure and (b) a range of expansion-tank pressures at constant engine speed. The results of tests of the two cooling systems show that with the expansion tank of system B higher pump-inlet pressures (approximately 6 lb/sq in.) and attendant better pump performance may be obtained than with the expansion tank used in system A for any fixed expansion-tank pressure. For an expansion-tank pressure equal to the vapor pressure of the coolant at a block-outlet temperature of 250° F, a coolant-flow rate of 255 gallons per minute is obtained with system B as compared with a flow rate of 200 gallons per minute obtained with system A. Both of these flow rates are adequate to cool 12-cylinder liquid-cooled engines at present power ratings. The higher pump-inlet pressures of system B, however, resulted in a more stable and safer operation of the coolant pump than could be obtained with system A. NACA E-125.

PB 94141

Manganiello, Eugene J. and Bogart, Donald

Piston heat-transfer coefficients across an oil film in a smooth-walled piston reciprocating-sleeve apparatus. Dec 1945. 41p photos, drawings, graphs, tables Mi $2.50 Ph $6.25

Tests were conducted with a heat-transfer apparatus that simulates the piston-cylinder-wall relation by means of a stationary, electrically heated, smooth-walled aluminum piston and a reciprocating steel sleeve separated by an oil film. Piston and sleeve temperatures were obtained for a

range of heat inputs from 1.0 to 7.6 Btu per second, speeds from 200 to 1,000 rpm, steady side thrusts from 10 to 150 pounds, and a range of piston-clearance oil-supply rates from 2 to 20 pounds per hour. The range of average temperatures observed was 200° F to 455° F for the piston and 150° F to 290° F for the sleeve. The tests showed that the piston heat-transfer coefficient increased rapidly with an increase in the average oil-film temperature, increased with speed, and increased with an increase in the supply of oil to the piston clearance space. Variation of the steady side thrust over a range of 10 to 150 pounds had no significant effect on the piston heat-transfer coefficient. A fair correlation of the piston heat-transfer coefficient as a function of the average oil-film temperature or the average piston temperature, the average sleeve velocity, and the piston-clearance oil-supply rate was obtained. The piston heat-transfer coefficient varied as the 1.15 power of the average oil-film temperature, directly with the average piston temperature, as the 0.27 power of the average sleeve velocity, and as the 0.35 power of the piston-clearance oil-supply rate for the ranges of conditions specified. The piston heat-transfer coefficient could also be fairly well correlated as a function of a Reynolds and a Prandtl number based on the average or the maximum sleeve velocity, the piston clearance, and the physical properties of the lubricating oil; the Nusselt number varies as the 0.30 power of both the Reynolds and the Prandtl numbers. NACA E-110.

PB 94197

Mulholland, Donald R. and others.

Laboratory investigation of icing in the carburetor and supercharger inlet elbow of an aircraft engine. I. Description of setup and testing technique. Dec 1945. 23p photos, drawings, graphs Mi $2.00 Ph $3.75

The laboratory research apparatus and testing technique developed and used at the NACA Cleveland laboratory to investigate the icing and de-icing of the carburetor and supercharger inlet of typical aircraft-engine induction systems under conditions closely simulating flight through a wide range of engine icing conditions is described. The apparatus permits the installation of the carburetor and the accessory housing including the inlet elbow and the supercharger assembly, which is driven by an electric dynamometer. A representative setup is shown. The technique involved in the determination of the limiting-icing curves and temperature requirements for the removal of ice are presented, together with representative results of icing and de-icing tests. Descriptions are presented of the systems used for controlling carburetor-deck pressure, air temperature and humidity, the rate and temperature of simulated rain, the fuel temperature, the air dilution and exhausting of the combutible mixture, the carburetor throttle angle, and fuel-air ratio. Experience in the use of the equipment has indicated that the use of a rotating supercharger impeller adds to the validity of the results because considerable turbulence and recirculation of fuel induced by impeller rotation are responsible for much of the refrigeration icing. NACA E-170.

PB 94202

Mulholland, Donald R. and Chapman, Gilbert E.

Laboratory investigation of icing in the carburetor and supercharger inlet elbow of an aircraft engine. VI. Effect of modifications to fuel-spray nozzle on icing characteristics. Jan 1946. 21p photos, drawings Mi $2.00 Ph $3.75

In order to prevent the formation of refrigeration icing in the induction system of an aircraft engine, several modifications to the spray nozzle were designed and tested. The modifications varied from a revised pintle to actual changes in the point of fuel injection without a basic alteration of the standard spray nozzle. Prevention of refrigeration icing in the carburetor and inlet elbow was achieved when the fuel spray was completely removed from the inlet-elbow passage and injected directly into the supercharger inlet through orifices in or attached to the rotating impeller. Two fuel-injection systems, a spinner type and a drilled-inducer type, that satisfactorily prevent the formation of refrigeration icing in the induction system were developed. NACA E-715.

PB 74378

Nelson, W. J. and Czarnecki, K. R.

Wind-tunnel investigation of carburetor-air inlets. Feb 1942. 53p photos, drawings, graphs, tables Mi $2.75 Ph $7.50

I. Carburetors, Aricraft—Tests

PB 94174

Nowick, A. S. and Brockway, L. O.

Electron-diffraction examination of cast-iron piston rings from single-cylinder aircraft-engine tests. Feb 1945. 16p photos, tables Mi $1.75 Ph $2.50

An electron-diffraction examination of cast-iron piston rings used in a single-cylinder test engine showed the presence of a layer of graphite covering the surface. The wear curves from the rings studied had shown variation from high rates (because of scuffing) to very low rates of wear. In all cases graphite was shown to be present with variations as to quantity and crystalline orientation. The fact that these piston rings did not have a graphite layer covering the surface before use was shown by a diffraction examination of lapped cast-iron rings. These patterns showed a iron plus graphite, predominately iron, and were similar to the diffraction patterns obtained by mildly abrading both new and used piston rings. A pure graphite pattern was obtained by mildly etching new cast-iron rings. Graphite was also found on the used cylinder barrel (SAE 4140 steel) used in the tests and, to a lesser extent, on the used top chrome-plated ring of the piston assembly.

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The source of graphite in all cases was probably the graphite enclosures in the cast-iron rings that has been exposed or extruded by the wearing process and spread by the rubbing of the piston rings against the cylinder barrel. The formation of a graphite layer was not assumed to be the only surface change that occurs to piston rings and cylinder barrel during engine operation. No other substances were identified by electron diffraction because the graphite layer in the thickness present on the rings and barrel observed is opaque to electrons. NACA E-144.

PB 94350

Palmer, Carl B. and Brevoort, Maurice J.

Effect of cooling-air blowers on thrust power. Jul 1944. 50p diagrs, graphs Mi $2.50 Ph $6.25

An assumed airplane was used to illustrate the analysis of the effect of cooling-air blowers on thrust power. The performance and engine characteristics selected for the airplane are essentially those of a modern pursuit airplane. The results obtained apply in particular to the assumed airplane, but the conclusions have a general application. When aviation-engine heat exchangers are used above their design altitude, blowers may be used to give additional available pressure and to increase the jet thrust, although the amount of blower power that may profitably be used is definitely fixed by the operating conditions. When the heat exchanger is large enough that a blower gives no thrust increase, the net thrust from the engine and cooling system is higher than can be obtained from any combination of blower and smaller heat exchanger. NACC L-173.

PB 94692

Pankhurst, R. C. and others.

Tests of contra-rotating propellers of 2 1/2 ft. diameter at negative pitch on a "typhoon" aircraft model. Nov 1945. 16p diagrs, graphs, tables Available from British Information Service, 30 Rockefeller Plaza, New York New York $1.00

Tests have been made on four-bladed contra-rotating and single propellers and on an eight-bladed single propeller in the "braking" condition over the range of blade setting from 0 deg. to -30 deg. at the 0.7 radius. Measurements of overall thrust and individual torques were made up to an advance ratio (J) of 4.0 for each pitch setting. ARC RM 2219

PB 94700

Pankhurst, R. C. and others.

Tests of contra-rotating propellers of 2 7/8-ft. diameter at negative pitch on a "typhoon" aircraft model. May 1945. 16p diagrs, graphs, tables Available from British Information Service 30 Rockefeller Plaza, New York, New York $1.00

The previous tests of a pair of contra-rotating two-bladed propellers have been extended to the propeller "braking" condition by covering the range of pitch setting from 0 deg. to -30 deg. at the 0.7 radius. Measurements of overall thrust and individual torques were made up to an advance ratio (J) of 4.0, except that the 0 deg. settings were not tested beyond an advance ratio of 1.0 where the torque had already become negative. ARC RM 2218.

PB 94147

Pinkel, Benjamin

Effect of exhaust back pressure on engine power. Jun 1943. 24p drawing, graphs, tables Mi $2.00 Ph $3.75

This bulletin presents data on the effect of exhaust back pressure on engine power for 14 aircraft engines. The data show that the effect of exhaust back pressure on engine power varies with engine speed, range of back pressure and manifold pressure involved, and engine type. The use of a single factor for the variation of power with back pressure was found to be very inaccurate. The only method of accurately determining the effect of back pressure on engine power that can be recommended at present is to test the specific engine type at the engine speed for which the data are desired. A convenient method of presenting these data is described. NACA E-116.

PB 94162

Pinkel, Benjamin and others.

Heat-transfer processes in liquid-cooled engine cylinders. I. Correlation of single-cylinder engine temperatures under forced-convection cooling conditions. Nov 1945. 39p diagrs, drawings, graphs, table Mi $2.25 Ph $5.00

An analysis based on forced-convection heat-transfer theory, similar to the analysis presented for air-cooled engines in NACA Report No. 612, is made of the cooling processes in liquid-cooled engine cylinders. Semiempirical equations that relate the average head and barrel temperatures with the primary engine and coolant parameters are derived. A correlation method based on these equations is applied to data obtained from previously reported tests, which were conducted over large ranges of engine and coolant conditions with two liquid-cooled cylinders using water and various aqueous ethylene glycol solutions as coolants. An equation for the cylinder-head temperature as a function of the engine operating conditions and the flow rate, temperature, and physical properties of the coolants is obtained, which represents the test data with good accuracy. A similar equation is obtained for the barrel-temperature data. The physical properties of the coolant appearing in these equations in order of their importance in determining the heat-transfer quality of the coolant are the thermal conductivity, the specific heat, and the viscosity. The cooling performance of the various coolants investigated is adequately correlated by these physical properties in the correlation equation. The application of the correlation equation is, however, limited to conditions for which boiling of the coolant on the engine walls is

not an important part of the cooling process. NACA E-131.

PB 94208

Pinkel, I. Irving and Plumly, Howard D.

Laboratory-tested constant-level oil sump to prevent aeration of scavenged oil from an aircraft engine. Apr 1944. 8p drawings Mi $1.25 Ph $1.25

A combination oil sump and scavenge pump was constructed to eliminate some of the oil-system difficulties in an aircraft engine that result from the aeration of the scavenged engine oil and the air-lock of the scavenge pump. Air is prevented from entering the scavenge pump by a column of oil in the sump above the pump inlet. This column of oil is maintained by returning some or all of the scavenge-pump delivery to the sump. An automatic valve, controlled by the oil level in the sump, regulates the flow of the oil bypassed to the sump. Laboratory oil-scavenge tests were conducted with a constant-level oil sump at sea level and the value of such a device for preventing oil aeration and scavenge-pump air-lock was determined. These tests showed that the device does prevent the aeration of scavenged oil and scavenge-pump air-lock. Tests of the device under conditions simulating altitude flight, mounted on a multi-cylinder full-scale engine on a torque stand, and in flight are warranted by the results of the laboratory tests. Details of the device are included. NACA E-182.

PB 94201

Renner, Clark E.

Laboratory investigation of icing in the carburetor and supercharger inlet elbow of an aircraft engine. V. Effect of injection of water-fuel mixtures and water-ethanol-fuel mixtures on the icing characteristics. Dec 1945. 10p graphs, tables Mi $1.25 Ph $1.25

Tests were conducted to determine the effects of internal coolants injected with the fuel on the icing characteristics of a twin-barrel injection carburetor mounted on an engine-stage supercharger assembly. Tests were made at air-flow conditions that simulated war emergency power. The results show that for a range of water-fuel ratios from 0 to 0.82, carburetor-air (dry-bulb) temperatures from -20° to 60° F, and carburetor-air relative humidities from 50 to 100 percent, serious icing of the supercharger inlet elbow and of the throttle plates occurred at carburetor-air temperatures below 40° F; for a range of water-ethanol-fuel ratios from 0.20 to 0.80, no serious icing occurred down to -20° F and negligible icing was observed. NACA E-174.

PB 94135

Reuter, J. George and Valerino, Michael F.

Analysis of the effect of core structure and performance on volume and shape of cross-flow tubular intercoolers. Dec 1942. 48p diagrs, graphs Mi $2.50 Ph $6.25

An analysis of cross-flow tubular intercoolers having a staggered-tube arrangement has been made for turbulent-flow conditions. Charts are presented that show how the over-all dimensions of the intercooler vary with the tube diameter, the transverse spacing, and the wall thickness without affecting the operation of the intercooler. These charts are applicable to both the charge-across-tube and the charge-through-tube intercoolers. Charts and equations relating the intercooler dimensional characteristics and the operating conditions are also given. The charts show how, for any given set of operating conditions, the tubular intercooler may be altered in size and shape to meet a given set of space requirements. When the intercooler operating conditions are kept constant, a reduction in either tube diameter or transverse spacing is shown to decrease the flow dimensions and to increase the no-flow dimension, the net result being a definite reduction in intercooler volume. For given transverse spacing and for constant operating conditions, the charge-through-tube intercooler and the charge-across-tube intercooler are about equal in volume, heat transfer surface, and width within the usual range of aircraft application. Under the same conditions, however, the frontal area fo the charge-across-tube intercooler is much less than that of the charge-through-tube intercooler. NACA E-104.

PB 94137

Reuter, J. George and Valerino, Michael F.

Design charts for cross-flow tubular intercoolers charge-through-tube type. Jul 1942. 45p drawing, graphs, tables Mi $2.50 Ph $6.25

On the basis of current heat-transfer theory, equations are developed relating the various dimensions, the air weight flow, and the performance of a cross-flow tubular intercooler in which the charge flows through and the cooling air across the tubes. These equations are then presented in graphical form in a series of design charts from which the intercooler design characteristic and performance can be quickly determined. A method of determining and presenting the performance of a given intercooler at various operating conditions is indicated. Comparisons are made with the type of cross-flow tubular intercooler in which the cooling air flows through and the charge across the tubes. For a given charge and cooling-air pressure drop, air weight flow, number of tube banks, and tube weight, the two types generally have different values of cooling effectiveness and have different over-all dimensions. For operation at conditions that are fairly representative of aircraft intercooler practice, the charge-through-tube type usually requires more space than does the charge-across-tube type of intercooler. NACA E-106.

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PB 94161

Reuter, J. George and Valerino, Michael F.

Intercooler cooling-air weight flow and pressure drop for minmum power loss. Apr 1944. 47p drawing, graphs Mi $2.50 Ph $6.25

An analysis has been made of the power losses in airplane flight of cross-flow plate and tubular intercoolers to determine the cooling-air weight flow and pressure drop that give minimum total power loss for any given cooling effectiveness. The power losses considered in this analysis are those due to (1) the extra drag imposed on the airplane by the weight of the intercooler, its duct, and its supports and (2) the drag sustained by the cooling air in flowing through the intercooler and its duct. The investigation covers a range of flight conditions of altitude, airspeed, lift-drag ratio, supercharger-pressure ratio, and adiabatic efficiency. The analysis reveals the following facts concerning the cooling-air operating conditions of intercoolers: (1) The optimum cooling-to-charge-air weight-flow ratio, that is, the flow ratio that gives minimum total power loss, is only slightly dependent on the airplane flight conditions and the charge-air pressure drop and is mainly a function of the intercooler cooling effectiveness and cooling-air pressure drop. (2) When the cooling-to-charge-air weight-flow ratio is varied to maintain its optimum value, the cooling-air pressure drop is optimum between 1 and 3 inches of water; the variation within this range depends on flight conditions, charge-air pressure drop, and type of intercooler (plate, charge-across-tube, or charge-through-tube). Within this range of pressure drop the change in total power loss from the minimum value is slight. The optimum values of cooling-air pressure drop and weight-flow ratio are tabulated. Curves are presented to illustrate the results of the analysis. Included are curves that give the variation in intercooler volume and the sacrifice in thrust power incurred by a departure of intercooler operation from the optimum values of cooling-air pressure drop and weight-flow ratio. NACA E-130.

PB 94428

Ribner, Herbert S.

Formulas for propellers in yaw and charts of the side-force derivative. May 1943. 22p graphs Mi $2.00 Ph $3.75

General formulas are given for propellers for the rate of change of side-force coefficient with angle of yaw and for the rate of change of pitching-moment coefficient with angle of yaw. Charts of the side-force derivative are given for two propellers of different plan form. The charts cover solidities of two to six blades and single and dual rotation. The blade angles range from 15° or 20° to 60°. The equations, and the charts computed from the equations, are based on an unpublished analysis, which incorporates factors not adequately covered in previously published work and gives good agreement with experiment over a wide range of operating conditions. A study of the equations indicates that they are consistent with the following physical interpretation: In developing side force, the propeller acts like a fin of which the area is the projected side area of the propeller, the effective aspect ratio is of the order of 8, and the effective dynamic pressure is roughly that at the propeller disk as augmented by the inflow. The variation of the inflow velocity, for a fixed-pitch propeller, accounts for most of the variation of side force with advance-diameter ratio. The charts may be applied to obtain the rate of change of normal-force coefficient with angle of attack of the axis of rotation if proper account is taken of the upwash or downwash from the wing. NACA L-217.

PB 94429

Ribner, Herbert S.

Propellers in yaw. Dec 1943. 72p drawings, graphs Mi $3.50 Pn $10.00

It was realized as early at 1909 that a propeller in yaw develops a side force like that of a fin. In 1917, R. G. Harris expressed this force in terms of the torque coefficient for the unyawed propeller. Of several attempts to express the side force directly in terms of the shape of the blades, however, none has been completely satisfactory. An analysis that incorporates induction effects not adequately covered in previous work and that gives good agreement with experiment over a wide range of operating conditions is presented herein. The present analysis shows that the fin analogy may be extended to the form of the side-force expression and that the effective fin area may be taken as the projected side area of the propeller. The effective aspect ratio is of the order of 8 and the appropriate dynamic pressure is roughly that at the propeller disk as augmented by the inflow. The variation of the inflow velocity, for a fixed-pitch propeller, accounts for most of the variation of side force with advance-diameter ration V/nD. The propeller forces due to an angular velocity of pitch are also analyzed and are shown to be very small for the pitching velocities that may actually be realized in maneuvers, with the exception of the spin. Further conclusions are: A dual-rotating propeller in yaw developes up to one-third more side force than a single-rotating propeller. A yawed single-rotating propeller experiences a pitching moment in addition to the side force. The pitching moment is of the order of the moment produced by a force equal to the side force, acting at the end of a lever arm equal to the propeller radius. This cross-coupling between pitch and yaw is small, but possibly not negligible. A correction to the side force for compressibility is included. NACA L-219

PB 94126

Rothrock, Addison M.

Calculations of intake-air cooling resulting from water injection and of water recovery from exhaust gas. Aug 1944. 14p graphs Mi $1.75 Ph $2.50

In connection with engine tests made by the National Advisory Committee for Aeronautics of the induction of water with the inlet air as a means of internal cooling of aircraft-engine cylinders, some preliminary calculations have been made for the effects of water in cooling the inlet air and also for the temperatures to which the exhaust gas would have to be cooled in order to recover sufficient water for this internal engine cooling. The estimates indicate that the cooling effect of the water on the inlet air can be more extensive than the cooling now obtained with intercoolers or aftercoolers in the air-induction system. In connection with water recovery from the exhaust gas, the estimates indicate that sufficient water can be recovered from 50 percent of the exhaust gas to provide an inducted water-fuel ratio of 0.5. NACA E-95.

PB 94148

Rothrock, Addison M.

Use of internal coolant as a means of permitting increase in engine take-off power. Jan 1944. 130 graphs, tables Mi $1.75 Ph $2.50

Engine tests, together with estimates made at Langley Memorial Aeronautical Laboratory, indicate that a 25-percent increase in take-off power can be obtained with present-day aircraft engines without increasing either the knock limit of the fuel or the external cooling requirements of the engine. This increase in power with present fuels and present external cooling is made possible through the use of an internal coolant inducted through the inlet manifold. Estimates on aircraft indicate that this 25-percent increase in power will permit an approximate usable increase of 8.5 percent in take-off load of existing military airplanes. This increase in load is equivalent to an increase in the weight of gasoline normally carried of between 30 and 65 percent. NACA E-117.

PB 94360

Sandahl, Carl A.

Wind-tunnel investigation of effects of a pusher propeller on lift, profile drag, pressure distribution, and boundary-layer transition of a flapped wing. Apr 1945. 26p photos, drawings, graphs Mi $2.00 Ph $3.75

Some of the effects of pusher-propeller operation on the aerodynamic characteristics of a flapped wing were measured in the Langley propeller-research tunnel. The effects of propeller operation on the lift and profile drag of the wing, on pressure distribution, and on the position of boundary-layer transition were obtained. The results indicated that, at fixed angles of attack and with flaps deflected, the wing lift increased appreciably with increasing thrust coefficient. With flaps retracted, no appreciable increase in lift with increases in thrust coefficient was measured. Chordwise pressure distribution at several spanwise stations indicated that the effect of propeller operation was greatest in the region immediately ahead of the propeller and that the effect extended outboard from the propeller axis for about 2.5 propeller radii. Measurements of boundary-layer velocity on the forward part of the upper surface of the wing showed no appreciable shift of transition in the range of thrust coefficients investigated. NACA L-148.

PB 94134

Sanders, J. C. and others.

Cooling tests of an air-cooled engine cylinder with copper fins on the barrel. Jul 1942. 26p photos, drawings, graphs Mi $2.00 Ph $3.75

Comparative cooling tests were run on two Wright C9GC (G-200) cylinders, one with the original steel fins and one with 1-inch spiral copper fins brazed on the barrel. The copper fins improved the over-all heat-transfer coefficient from the barrel to the air 115 percent. At take-off power the temperature of the barrel for the same cooling-air pressure drop decreased from 297° F to 213° F. No structural defect had developed after 60 hours of operation at brake mean effective pressures of 45 to 258 pounds per square inch. The improvements determined by test were in reasonable agreement with the improvement computed from fin dimensions. Computations were therefore made to determine the improvement in cooling that could be obtained with copper and aluminum fins having the same weights as the original steel fins. In the ranges of practical sizes the copper and aluminum fins were equally effective in cooling and were 80 percent better than the original steel fins. NACA E-103.

PB 94152

Sanders, J. C. and others.

Effect of continuous knock on the endurance of an aircraft engine cylinder. Mar 1944. 16p photos, drawings, graphs Mi $1.75 Ph $2.50

The possibility that knock causes injury to engine parts only by inducing preignition is the subject of serious controversy. An investigation was therefore conducted to determine any injurious effects of knock on engine parts. Endurance tests were run on a single-cylinder engine to compare the conditions of cylinders operated with and without knock. All tests were run at approximately the same power outputs. The intensity of knock was controlled by the selection of fuel. An oscilloscope was used to aid in detecting preignition. Two hours of operation with violent knock were sufficient to cause severe localized disintegration of the piston and cylinder head in the regions of the end zones. Operation with light knock for 5.6 hours resulted in slight localized disintegration

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of the piston in the region of the intake end zone. Operation for 25 hours under the same test conditions but with a fuel of sufficiently high grade to suppress knock resulted in no noticeable injury other than normal operating wear. Neither the oscilloscope nor the cutting off of the ignition revealed any indication of preignition or afterfiring. NACA E-121.

PB 94116

Schey, Oscar W. and others.

Comparative cooling of cylinders of nonuniform fin width with tight-fitting baffles and with baffles that provide constant flow-path areas. Apr 1944. 25p photos, diagrs, drawings, graphs, tables Mi $2.00 Ph $3.75.

An examination of the cooling fins on several modern air-cooled engine cylinders showed large restrictions in the air-flow passages between individual fins, especially around the intake and exhaust ears of the cylinders, when baffles that were in close contact with the fins were used. Tight-fitting baffles, of NACA design, for a cylinder from a Wright R-1820-H engine and for a cylinder from a Pratt & Whitney R-2800-21 engine were altered to maintain a constant free-flow area from the front to the rear of each interfin air passage. Each cylinder was mounted on a single-cylinder crankcase and tested, first with the tight-fitting baffles and then with the altered baffles. Tests at sea-level conditions were made at constant indicated horse-powers of 66 for the Pratt & Whitney cylinder and 80 for the Wright cylinder (approximately cruising power in each case) with a fuel-air ratio of 0.08. The cooling-air pressure drop was varied from 2 to 30 inches of water. Temperatures were measured at 22 points on the cylinder head, at 10 points on the cylinder barrel, and at 2 points on the cylinder flange. The results of this investigation showed that, by modifying tight-fitting baffles to maintain a constant free-flow area from the front to the rear of each interfin air passage, the weight of cooling air flowing over the cylinder heads for a given pressure drop was increased approximately 36 percent for the Wright R-1820-H cylinder and from 30 to 44 percent for the Pratt & Whitney R-2800-21 cylinder; the average head temperature of the Wright R-1820-H cylinder was reduced about 40° F; the temperature at one point on top of the head near the exhaust ear was reduced 104° F; the average head temperature of the Pratt & Whitney R-2800-21 cylinder was reduced approximately 23° F; and the hottest point measured on the cylinder head was reduced about 35° F. NACA E-85.

PB 94129

Schey, Oscar W. and others.

Effect of increased cooling surface on performance of aircraft-engine cylinders as shown by tests of the NACA cylinder. Jul 1944. 54p photos, drawings, graphs, tables Mi $2.75 Ph $7.50

A method of constructing fins of nearly optimum proportions has been developed by the NACA to the point where a cylinder has been manufactured and tested. Data were obtained on cylinder temperature for a wide range of inlet-manifold pressures, engine speeds, and cooling-pressure differences. The results indicate that an improvement of 40 percent in the outside-wall heat-transfer coefficient could be realized on the present NACA cylinder by providing a thermal bond equivalent to that of an integral fin-cylinder wall combination between the preformed fins and the case cylinder wall. Estimates over a range of well thicknesses from 0.75 inch to 1.5 inches show that the pressure drop required for cooling could be decreased as much as 80 percent for a range of powers from present cruising to take-off power if the head fins on a present-day cylinder were replaced by fins of NACA cylinder proportions and if the thermal bond between the wall and the fins were equivalent to that of an integral arrangement. Calculations based on an inside-wall head temperature of 500° F indicate that the pressure drop required for cooling hypothetical cylinders of varying head-wall thickness could be decreased 50 percent by increasing the thickness from 0.7 inch to 1.5 inches. An estimate based on an inside-wall haed temperature of 500° F and an integral fin bond indicates that the improved cooling obtained through the use of fins of NACA cylinder fin proportions will permit an increase of 35 percent in power output. This estimate of power increase is made solely for cooling criteria and does not include other factors limiting power output. NACA E-98.

PB 94058

Shaw, Milton C. and Macks, E. Fred

Radial aircraft-engine bearing loads, I. Crankpin-bearing loads for engines having nine cylinders per crankpin. Oct 1945. 55p photos, drawings, graphs, tables Mi $2.75 Ph $7.50

Dimensional analysis and the principle of similitude are applied to the computation of the crankpin-bearing loads of radial engines having nine cylinders per crankpin. A method of generalizing the results of a relatively few conventional load analyses is developed to determine crankpin-bearing loads under a wide range of operating conditions. Charts are presented that give the maximum and mean crankpin-bearing loads for a production engine at all values of engine speed to 5,000 rpm and at all values of indicated mean effective pressure to 500 pounds per square inch. By use of speed and load correction factors these charts may be readily applied to all engines having nine cylinders per crankpin, and to illustrate this extended use two other production engines are considered. The individual effects of the several engine dimensions (reciprocating weight, rotating weight, connecting-rod length, stroke, bore, and compression ratio) upon the crankpin-bearing loads

are determined and discussed. It was found that optimum combinations of engine speed and indicated mean effective pressure exist for which the mean and maximum crankpin-bearing loads are minima for a given power, but such combinations lie in an impracticable operating region. The maximum and mean crankpin-bearing loads in the practicable region of operation are decreased by an increase of indicated mean effective pressure or compression ratio. Polar diagrams of bearing loads show that the shock load and the range of stress imposed on a crankpin bearing increases with increased indicated mean effective pressure and compression ratio. NACA E-26.

PB 94442

Silverstein, Abe and Guryansky, Eugene R.

Development of cowling for long-nose air-cooled engine in the NACA full-scale wind tunnel. Oct 1941. 19p photos, drawings, graphs, tables Mi $1.75 Ph $2.50

1. Cowlings—Tests 2. NACA L-241

PB 94296

Talmage, Donald B.

Determination from flight tests of thrust coefficients for 10 full-scale airplanes in the gliding condition with engine idling. Jun 1945. 13p graphs, tables Mi $1.75 Ph $2.50

Typical thrust and torque coefficients and increments, due to the propeller, in the ratio of the dynamic pressure at the tail to the free-stream dynamic pressure $\Delta\left(\frac{q_t}{q_o}\right)_{prop}$ are presented for 10 full-scale airplanes. These quantities were calculated from flight measurements of engine speed and airspeed with the aid of propellers charts to provide thrust data to serve as a basis for the simulation of gliding-flight conditions of full-scale airplanes on powered wind-tunnel models. The thrust coefficient T_c ranged from values of about 0 to -0.1 with an average value of -0.035 at a lift coefficient of 0.5. Values of $\Delta\left(\frac{q_t}{q_o}\right)_{prop}$ estimated from the propeller thrust coefficient ranged from 0 to about -0.20 with the average at about -0.09 at low lift coefficients. The thrust and torque coefficients consistently became slightly more negative as the speed decreased. Calculations indicate that an error of about 2 percent mean aerodynamic chord appears possible in determining the neutral point from wind-tunnel tests of a model in the gliding condition if the propeller is operated at zero thrust rather than at the values of thrust coefficient indicated by the flight tests. NACA L-88.

PB 94483

Theodorsen, Theodore

Theory of propellers. I. Determination of the circulation function and the mass coefficient for dual-rotating propellers. Aug 1944. 50p photos, graphs, tables Mi $2.50 Ph $6.25

Values of the circulation function have been obtained for dual-rotating propellers. Numerical values are given for four-, eight-, and twelve-blade dual-rotating propellers and for advance ratios from 2 to about 6. In addition, the circulation function has been determined for single-rotating propellers for the higher values of the advance ratio. The mass coefficient, another quantity of significance in propeller theory, has been introduced. This mass coefficient, which is actually the mean value of the circulation coefficient, expresses the effective area of the column of the medium acted upon by the propeller in terms of the propeller-disk area. Values of the mass coefficient, which have been determined directly by special measurements and also by integration of the circulation function, are given for the four-, eight-, and twelve-blade dual-rotating propellers. The mass coefficient has also been determined for several cases of single-rotating propellers, partly for the purpose of comparing such experimental values with theoretical results in the known range of low advance ratios and partly to extend the results to include a range of high advance ratios. The effect of stationary countervanes on the mass coefficient has also been determined for several cases of practical interest. NACA L-490

PB 94369

Theodorsen, Theodore

Theory of propellers. II. Method for calculating the axial interference velocity. Nov 1944. 96p graphs, tables Mi $4.25 Ph $12.50

A technical method is given for calculating the axial interference velocity of a propeller. The method involves the use of certain weight functions P, Q, and F. Numerical values for the weight functions are given for two-blade, three-blade, and six-blade propellers. NACA L-157.

PB 94367

Theodorsen, Theodore

Theory of propellers. III. Slipstream contraction with numerical values for two-blade and four-blade propellers. Nov 1944. 60p diagrs, graphs, tables Mi $2.75 Ph $7.50

As the conditions of the ultimate wake are of concern both theoretically and practically, the magnitude of the slipstream contraction has been calculated. It will be noted that the contraction in a representative case is of the order of only 1 percent of the propeller diameter. In consequence, all calculations need involve only first-order effects. Curves and tables are given for the contraction coefficient of two-blade and four-blade propellers for various values of the advance ratio; the contraction coefficient is defined as the contraction in the diameter of the wake helix in terms

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of the wake diameter at infinity. The contour lines of the wake helix are also shown at four values of the advance ratio in comparison with the contour lines for an infinite number of blades. NACA L-155.

PB 94334

Theodorsen, Theodore

Theory of propellers. IV. Thrust, energy, and efficiency formulas for single and dual-rotating propellers with ideal circulation distribution. Nov 1944. 20p graphs, tables Mi $1.75 Ph $2.50

Simple and exact expressions are given for the efficiency of single- and dual-rotating propellers with ideal circulation distribution as given by the Goldstein functions for single-rotating propellers and by the new functions for dual-rotating propellers from part I of the present series. The efficiency is shown to depend primarily on a defined load factor and, to a very small extent, on an axial loss factor. Tables and graphs are included for practical use of the results. The present paper is the fourth in a series on the theory of propellers. NACA L-118.

PB 87150

U. S. Air Force.

Boeing: Installation of engine split ring cowl frame assembly—B-29 series and F-13 series. Nov 1947. 4p drawing, tables Mi $1.25 Ph $1.25

1. Engines, Aircraft—Cowlings

PB 88854

U. S. Air Force.

Boeing: Installation of flame resistant hose with detachable end fittings for main fuel supply lines forward of the firewall—B-29 series and F-13 series. Feb 1948. 3p drawings, tables Mi $1.25 Ph $1.25

1. Hoses, Fire resistant

PB 87294

U. S. Air Force.

Boeing: Removal of propeller assemblies equipped with balsa wood cuffs—all series of B-29, TB-29 and F-13. Nov 1947. 1p table Mi $1.25 Ph $1.25

1. Propeller blades—Maintenance and repair 2. AAF TO 01-20EJA-93

PB 80796a2

U. S. Air Force and U. S. Navy Dept.

Compound: Engine cleaning (Cresol base). Air Force-Navy aeronautical specification. Oct 1948. 2p table Mi $1.25 Ph $1.25

PB 89224

U. S. Air Force.

Cylinder compression test. Feb 1948. 4p drawings, tables Mi $1.25 Ph $1.25

1. Cylinders—Compression tests

PB 88279

U. S. Air Force.

Electrical equipment: Detection of faulty spark plugs by use of cold cylinder indicator (magic wand)—air cooled engines. Jan 1948. 3p photos, tables Mi $1.00 Ph $1.50

1. Spark plugs—Tests

PB 88293

U. S. Air Force.

Electrical equipment: Modification of covers, General Electric magnetos; types S18LGPI and S18RGP. Jan 1948. 2p photos Mi $1.00 Ph $1.00

1. Magnetos—Housings 2. Magnetos, Aircraft

PB 88853

U. S. Air Force.

Engine conditioning. Feb 1948. 14p Mi $1.75 Ph $2.50

1. Engines, Aircraft—Maintenance and repair

PB 95297

U. S. Air Force and U. S. Navy Dept.

Engines: Acceptance test for aircraft reciprocating. Air Force-Navy aeronautical specification. Sep 1948 12p table Mi $1.75 Ph $2.50

1. Engines, Aircraft—Tests

PB 95304

U. S. Air Force and U. S. Navy Dept.

Engines: General specification for aircraft reciprocating. Air Force-Navy aeronautical specification. Sep 1948. 25p tables Mi $2.00 Ph $3.75

1. Engines, Aircraft—Specifications

PB 94649

U. S. Air Force and U. S. Navy Dept.

Engines: Processes for corrosion protection, pre-oiling and ground operation of aircraft reciprocating. Air Force-Navy aeronautical specification. Aug 1948. 22p drawing, tables Mi $2.00 Ph $3.75

1. Engines, Aircraft—Specifications 2. AN-E-50

PB 95305

U. S. Air Force and U. S. Navy Dept.

Engines: Qualification test for aircraft reciprocating. Air Force-Navy specification. Sep 1948. 21p tables Mi $2.00 Ph $3.75

1. Engines, Aircraft—Tests

PB 95264r

U. S. Air Force and U. S. Navy Dept.

Fitting end: Hydraulic and pneumatic hose swivel, detachable for AN-H-24 hose. Air Force-Navy aeronautical standard. Sep 1948. 1p drawings, tables Mi $1.25 Ph $1.25

PB 81299r

U. S. Air Force and U. S. Navy Dept.
Flange: Oil connection 4 bolt. Air Force-Navy aeronautical standard. Oct 1948. 1p drawings, table Mi $1.25 Ph $1.25
Revision 1 of PB 81299

PB 94693

U. S. Air Force.
Fuel system: Procedure for synchronization of Bendix direct fuel injection pumps. May 1948. 3p photos, drawings Mi $1.25 Ph $1.25
1. Pumps, Fuel—Aircraft

PB 87124r2

U. S. Air Force.
General Electric: Installation or rework of finger screens in pressure and scavenge inlet passages of lube oil pump—J33-A-9, -Ge-11, -A-17 and -A-21. Dec 1947. 3p drawings, tables Mi $1.25 Ph $1.25

PB 89222

U. S. Air Force.
General electric: Replacement of Nathan lubricators, model PH7-A-101-1—J35-C-3, J35-A-5, and J35-A-15. Mar 1948. 2p Mi $1.25 Ph $1.25
1. Lubricators

PB 88292

U. S. Air Force and U. S. Bureau of Aeronautics.
Handbook: Overhaul instructions, aircraft motors BA-10. (General Electric). Jan 1948. 26p photos, diagrs, drawings, tables Mi $1.50 Ph $3.00
1. Motors, Aircraft

PB 94686

U. S. Air Force and U. S. Bureau of Aeronautics.
Handbook, overhaul instructions: Aircraft motors, series 5BC21. (General Electric). Aug 1948. 23p photos, drawings, tables Mi $2.00 Ph $3.75
1. Engines, Aircraft—Maintenance and repair

PB 81783r

U. S. Air Force and U. S. Bureau of Aeronautics.
Handbook, overhaul instructions: Aircraft starter-generator, model 2CM74B1. (General Electric). May 1948. 2p photos, drawing Mi $1.25 Ph $1.25

PB 88866

U. S. Air Force and U. S. Bureau of Aeronautics.
Handbook, overhaul instructions: Engineer's turbo boost selector type WG109A2 and remote turbo boost selector type WG116A2. (Minneapolis-Honeywell). Jan 1948. 13p photos, drawings Mi $1.75 Ph $2.50
1. Selectors, Turbo—Maintenance and repair

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PB 87147

U. S. Air Force and U. S. Bureau of Aeronautics.
Handbook, overhaul instructions: Hydraulic pump, motor driven. (Pesco). Nov 1947. 14p photos, drawings, tables Mi $1.75 Ph $2.50
1. Pumps, Hydraulic—Maintenance and repair

PB 89219

U. S. Air force and U. S. Bureau of Aeronautics.
Handbook, overhaul instructions: Isodraulic equalizer, series 12248. (Adel). Feb 1948. 13p photos, drawings, table Mi $1.75 Ph $2.50
1. Equalizers, Isodraulic

PB 86907r2

U. S. Air Force and U. S. Bureau of Aeronautics
Handbook, overhaul instructions: Model R-985 series AN-1, -3, and -6 aircraft engines. Oct 1947. 9p photos, tables Mi $1.25 Ph $1.25
Revision 2 of PB 86907

PB 95538

U. S. Naval Aircraft Factory, Philadelphia
Index of drawings; Engine mount and fuselage stress analyses, detail specifications; Aileron landing gear, tail wheel gear, main float, and tail surface structural analyses, for the model N3N-3 trainer airplane, as of Dec 1947. 553f Mi $9.00 Enl Pr $72.50
1. Airplanes, Trainer 2. Engines, Aircraft—Mounts 3. Fuselages—Stress analysis 4. Ailerons 5. Landing gear 6. Tail wheels 7. Tail surfaces

PB 94412

Vogelewede, T. J.
Proposed method of measuring engine charge air flow in flight. May 1944. 10p drawings, graphs Mi $1.25 Ph $1.25
A method is outlined for determining in flight the weight rate of air flow to the engine equipped with a Bendix-Stromberg injection-type carburetor. The method has the advantages that no additional equipment need be inserted in the charge-air system and only a few simple measurements are necessary. The analysis of an air-box calibration of the carburetor to be used in interpreting the flight measurements is shown by an example. NACA L-200.

PB 94390

Vogeley, A. W.
Climb and high-speed tests of a Curtiss No. 714-1C2-12 four-blade propeller on the republic P-47C airplane. Dec 1944. 33p photo, drawing, graphs, tables Mi $2.25 Ph $5.00
Flight tests were made of a Curtiss No. 714-1C2-12 four-blade propeller on a Republic P-47C airplane in climb and at high speed. The loss in efficiency when power was increased from normal to military was found to be from 5 to 8 percent in

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climbs at an indicated airspeed of 165 miles per hour. This loss was attributed primairly to reductions in section lift-drag ratios resulting from increased operating lift coefficients. In high-speed flight at military power, losses in efficiency due to compressibility started at an airplane Mach Number less than 0.4 and increased steadily to 10 or 11 percent at an airplane Mach number of 0.7 These losses were encountered whenever the propeller-tip Mach number exceeded 0.88 and the propeller efficiency decreased at a rate of about 7 percent for an increase of 0.1 in tip Mach number. At an airplane Mach number of 0.7 and constant propeller rotational speed the propeller efficiency decreased with a decrease in power below military power. In comparison with the efficiencies of low-speed flight tests (a Mach number of approximately 0.3) at the same advance-diameter ratio, however, the compressibility loss was relatively independent of power. The tests indicated that, by suitably increasing the solidity and reducing the rotational speed, it may be possiole to improve the propeller efficiency in both climb and high-speed operation. NACA L-177.

PB 94056

Wear, Jerrold D. and others

Some effects of internal coolants on knock-limited and temperature-limited power as determined in a single-cylinder aircraft test engine. Aug 1944. 39p drawings, graphs Mi $2.25 Ph $5.00

Tests were conducted on a wright C9GC cylinder under the following conditions:

Compression ratio.....	7.0
Spark advance (except for variable spark-advance test), degrees B.T.C....	20
Cooling-air upstream temperature °F....	125
Engine speed, rpm.....	2500, 1830
Cooling-air pressure drop at engine speed of 2500 rpm, inches of water....	20, 5
Cooling-air pressure drop at engine speed of 1830 rpm, inches of water....	10
Inlet-air temperature (except for variable inlet-air-temperature tests), °F.....	250

Internal coolants tested were:

1. Water
2. 30-70 methyl alchol-water volume percent mixture
3. 70-30 methyl alchol-water volume percent mixture
4. Methyl alcohol
5. 80-20 ethyl alcohol-water volume percent mixture

Collant-fuel weight ratios of 0, 0.20, 0.35, 0.50, and 0.65 were tested with Army 100-octane aviation gasoline used as the fuel throughout these tests. For each test the fuel-air ratio was varied and at each fuel-air ratio the inlet-air pressure was increased until either fuel knock was recorded or the temperature of the rear middle cylinder barrel exceeded a value of 325° F. The relative effects of decreasing the spark advance and of decreasing the inlet-air temperature are compared with the effects of internal cooling. The following results were obtained from single-cylinder tests reported herein: 1. Based on these single-cylinder tests, it is estimated that temperature-limited take-off power may be increased 60 percent, knock-limited rated power increased 50 percent, and knock-limited cruising power increased 60 percent through the use of internal coolants. 2. Results with different percentages of methyl alcohol in a mixture of alcohol and water indicate that a 70-30 methyl alcohol-water volume percent mixture permitted the highest knock-limited or temperature-limited performance at high fuel-air ratios. 3. The mixture of ethyl alcohol and water raised the permissible temperature-limited power more than the mixture of methyl alcohol and water. 4. The mixture of methyl alcohol and water raised the permissible knock-limited power more than the mixture of ethyl alcohol and water. 5. At knock- or temperature-limited indicated mean effective pressures, the indicated specific liquid consumption with internal coolants was less than the indicated specific fuel consumption with fuel alone above 250 indicated mean effective pressure at 2,500 rpm and a cooling-air pressure drop of 20 inches of water and above 230 indicated mean effective pressure at 1,830 rpm and a cooling-air pressure drop of 10 inches of water. 6. Lowering the inlet-air temperature or retarding the ignition timing within practical limits did not permit as high knock-limited or temperature-limited power as the addition of suitable amounts of internal coolants. NACA E-24

PB 94447

Wilson, Herbert A.

Full-scale-tunnel investigation of a multiengine pusher-propeller installation. Nov 1942. 15p photos, graphs, table Mi $1.75 Ph $2.50

As part of the investigation in the NACA full-scale tunnel of the characteristics of propeller installations for multiengine airplanes, propellers designed specifically for pusher operation behind fixed contravances have been tested on a large-scale model of a four-engine airplane. In this installation, the wing trailing edge was twisted to serve as a contravane and to produce the the rotating inflow required for optimum propulsive efficiency. Tests of this propeller without wing twist and a conventional propeller were made for comparison. Propulsive efficiencies of 88 1/2 percent were obtained for the pusher propeller were the contravanes, a value which was about 3 1/2 percent higher than that for the pusher propellers alone. The efficiency of the conventional pusher-propeller installation was about the same as that of the special propeller without contravanes and of the same order as that obtained with tractor installations. NACA L-246

PB 93948

Young, A. D. and Green, G. L.

Tests of high-speed flow in diffusers to rectangular cross-section. Jul 1944. 33p photos, drawings, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.90

The diffusers tested all diffused in one plane, so that they were of constant width, and they all had the same exit and entry areas, the ratio of these two areas being 4:1. The semi-angles ranged from 4 deg. to about 16 deg. The investigation included measurements of the losses involved, of the pressure distributions along the diffusers, of the total-head distributions at the exits, and observations by means of a schlieren installation of the flow and shock-wave patterns in the diffusers. By varying the applied pressure ratio the tests were carried in each case from a low entry Mach number to well beyond the point at which the diffuser chocked, i.e., the point for which overall sonic conditions were attained at the beginning of the diffuser. The main conculsions are: (a) For entry Mach numbers below choking the optimum semi-angle for minimum loss is about 4-5 deg. (b) For entry Mach numbers above choking all diffusers become very inefficient. The fractional total-head loss then becomes a rapidly increasing function of the applied pressure ratio, independent of the diffuser angle. This function is reasonably close to that predicated on simple theoretical grounds. (c) The losses in a short wide-angled diffuser can be very effectively reduced by means of a dividing vane. ARC RM 2201.

PB 94400

Zimmey, Charles M. and Lappi, Viola M.

Data for design of entrance vanes from two-dimensional tests of airfoils in cascade. Oct 1945. 57p drawings, graphs, tables Mi $2.75 Ph $7.50

As a part of a program of the NACA directed toward increasing the efficiency of compressors and turbines, data were obtained for application to the design of entrance vanes for axial-flow compressors or turbines. A series of blower-blade sections with relatively high critical speeds have been developed for turning air efficiently from 0° to 80° starting with an axial direction. Tests were made of five NACA 65-series blower blades (modified NACA 65(216)-010 airfoils) and of four experimentally designed blower blades in a stationary cascade at low Mach numbers. The turning effectiveness and the pressure distributions of these blade sections at various angles of attack were evaluated over a range of solidities near 1. Entrance-vane design charts are presented that give a blade section and angle of attack for any desired turning angle. The blades thus obtained operate with peak-free pressure distributions. Approximate critical Mach numbers were calculated from the pressure distributions. NACA L-188.

—62278

Training and Training Devices

PB 97144

U. S. Army Air Forces and others.

Pilot's flight operating instructions for airplanes, Army Model BT-13B and Navy Model SNV-2. Jun 1945. 55p photos, graphs, tables Mi $2.75 Ph $7.50

1. Gt. Brit. Air Council of the United Kingdom 2. BT-13B (Airplane) 3. SNV-2 (Airplane) 4. Airplanes—Operation 5. AN 01-50BD-1

PB 97119

U. S. Army Air Forces and others.

Pilot's handbook of flight operating instructions, navy model PBY-5A airplanes. Oct 1948. 103p photos, drawings, graphs, tables Mi $4.50 Ph $13.75

1. Airplanes—Operation 2. BPY-5A (Airplane) 3. AN 01-5MA-1

PB 89626

U. S. Air Force.

Gunnery equipment and accessories: Inspection and modification of G-9 gun solenoid. Feb 1948. 2p drawings Mi $1.25 Ph $1.25

1. Gunnery, Aerial—Training devices 2. Solenoids—Tests 3. G-9 (Gun solenoid) 4. AAF TO 11-10E-3

PB 40258r

U. S. Air Force.

Set: Training, individual, pilot single engine, advanced. Mar 1948. 6p tables Mi $1.25 Ph $1.25

1. AAF TO 00-30-471-1

PB 87732

U. S. Army Air Forces.

Set: Training, individual, flight engineer, maintenance and inspection phase. Sep 1947. 6p tables Mi $1.25 Ph $1.25

1. Engineers, Aeronautical—Training 2. Aircraft—Maintenance and repair

PB 85274

U. S. Army Air Forces.

Set: Installation, equipment experimental, engineering shops. Feb 1947. 4p tables Mi $1.25 Ph $1.25

1. Airplanes—Maintenance and repair

PB 94974

U. S. Air Force.

Set: Preparation, aeronautical chart. Aug 1948. 10p tables Mi $1.25 Ph $1.25

1. Charts, Bearing 2. Navigation, Aerial

PB 94975

U. S. Air Force.

Set: Mobile training unit, B-26 (A-26) aircraft. Jun 1948. 4p tables Mi $1.25 Ph $1.25

1. Trainers, Aviation—Equipment

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PB 94214

Baals, Donald D. and Mourhess, Mary J.

Numerical evaluation of the wake-survey equations for subsonic flow including the effect of energy addition. Nov 1945. 9 lp drawings, graphs, tables Mi $4.25 Ph $12.50

Direct-reading tables and charts are presented for determining the drag or thrust coefficients from wake-survey measurements in the subsonic speed range. For flows wherein no energy is added, the point drag coefficient is shown to be an explicit function of the stream Mach number Mo, the static-pressure coefficient at the wake station P_1, and the total-pressure-loss coefficient $\Delta H/q_o$, where ΔH is the total-pressure loss and q_o is the stream dynamic pressure. Values of the point drag coefficient are tabulated for a wide range of values of these parameters. Inasmuch as the tabulated coefficients (either drag or thrust) represent the point values, which are independent of the integration of the wake, the charts or tables in the form presented are general in application. For flows wherein energy is added, such as flows behind propellers or heated radiators, and additional parameter, which is a function of the stagnation-temperature rise, must be considered. Values of the point drag coefficient that include the effects of the addition of energy are tabulated. NACA L-5.

PB 94368

Doenhoff, Albert E. von and Stivers, Louis S., Jr.

Aerodynamic characteristics of the NACA 747A315 and 747A415 airfoils from tests in the NACA two-dimensional low-turbulence pressure tunnel. Sep 1944. 14p graphs, tables Mi $1.75 Ph $2.50

Two low-drag airfoils, the NACA 747A315 and the NACA 747A415, designed to have reduced pitching moments about the quarter-chord point and moderately high values of the design lift coefficient have been tested in the NACA two-dimensional low-turbulence pressure tunnel. Section lift, drag, and pitching-moment coefficients are presented for Reynolds numbers of 3×10^6, 6×10^6, and 9×10^6, together with section lift and section drag data for a Reynolds number of 6×10^6 for the same airfoils with roughened leading edges. A comparison of the characteristics, at a Reynolds number of 9×10^6, of the NACA 747A315 and NACA 747A415 airfoils with characteristics of the NACA 65_2-415 airfoil is given in the following table:

NACA airfoil section	Minimum section drag coefficient	Range of section lift coefficient for low drag	Section pitching-moment coefficient about quarter chord at design section lift coefficient
747A315.....	0.0038	0.22 to 0.62	-0.017
747A415.....	.0041	.32 to .72	-.036
65_2-415.....	.0042	.08 to .58	-.071

NACA airfoil section	Maximum section lift coefficient	Critical mach-number at design section lift coefficient
747A315.....	1.43	0.626
747A415.....	1.50	.612
65_2-415.....	1.62	.641

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PB 81526

Ducan, W. J.

Some notes on aerodynamic derivatives. Apr 1945. 10p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.70

It is shown that the two-dimensional derivatives for a thin aerofoil performing any small exponential sinusoidal motion can be obtained from the derivatives for a real divergence given in R. & M. 1500; all that is required is the values of the modified Bessel functions K_0 and K_1 for complex arguments. The derivatives for simple harmonic motion found in this way agree with those obtained directly in R. & M. 1500 and later confirmed by Theodorsen[3], Kassner and Fingado[7] and others. One of the questions examined is the conditions of applicability of quasi-static derivatives in two- and three-dimensional motion: these are calculated from the lift slope for steady incidences. It is concluded that such derivatives can safely be used when the non-dimensional quantity c_a/V_a does not exceed 0.02. Thus quasi-static derivatives can be used for the phugoid, but may be somewhat in error for the rapid longitudinal oscillations of aircraft. The general question of the use of derivatives which are independent of time is briefly examined, and attention is drawn to the special properties of the quarter- and three-quarter points of the chord. It is pointed out that there is need

for research on the derivatives of aerofoils whose lift slopes fall below the ideal value for thin aerofoils.

PB 81519

Garner, H. C.

Development of turbulent boundary layers. Jun 1944. 21p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.30

A new method has been used to calculate the development of a turbulent boundary layer until it separates. It is a combination of two existing methods due to von Doenhoff and Howarth. From his analysis of data for turbulent boundary layers along aerofoils, von Doenhoff derived an empirical equation for the rate of growth of the shape parameter H, which, together with the momentum thickness, determined satisfactorily the velocity distribution in a turbulent boundary layer. A similar empirical equation, when used with Howarth's form of the momentum equation of the boundary layer and a power law for the skin friction, leads to a considerably simplified calculation. The report describes the new method and discusses the initial conditions at the onset of the fully turbulent layer. The Appendices deal with details of computation and calculations by von Doenhoff's method. The calculations indicate the rapid forward movement of the position of turbulent separation on thick aerofoils with increase in C_L. They show that, while there is probably no turbulent separation on an 18 per cent. low-drag aerofoil at $C_L = 0$, the flow does separate near s/c = 0.94 on a 24 per cent. section at $C_L = 0$. The following results require and give scope for further investigation: (i) In order to determine the separation point within 4 per cent. of the chord, the value of H immediately after transition must be know within ± 0.05. (ii) Theoretically the criterion at turbulent separation should be consistent with zero skin friction. The introduction of this condition, however, tends to increase the discrepancy between experimental and calculated curves of both H and the momentum thickness. There is evidence, moreover, to suggest that the skin friction increases violently through the adverse pressure gradient preceding separation. (iii) The empirical equation is derived entirely from data at low Reynolds numbers ($0.35 \times 10^6 \leq R \leq 4.18 \times 10^6$). It may be proved ultimately that certain constants in the equation vary appreciably with Reynolds number. ARC RM 2133.

PB 94341

Garrick, I. E. and Kaplan, Carl

Flow of a compressible fluid by the hodograph method. I. Unification and extension of present-day results. May 1944. 49p graphs, tables Ml $2.50 Ph $6.25

Elementary basic solutions of the equations of motion of a compressible fluid in the hodograph variables are developed and used to provide a basis for comparison, in the form of velocity correction formulas, of corresponding compressible and incompressible flows. The known approximate results of Chapylgin, von Karman and Tsien, Temple and Yarwood, and Prandtl and Glauert are unified by means of the analysis of the present paper. Two new types of approximations, obtained from the basis solutions, are introduced; they possess certain desirable features of the other approximations and appear preferable as a basis for extrapolation into the range of high stream Mach numbers and large disturbances to the main stream. Tables and figures giving velocity and pressure-coefficient correction factors are included in order to facilitate the practical application of the results. NACA L-127.

PB 81595

Glauert, M. B.

Design of suction aerofoils with a very large C_L range. Nov 1945. 8p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.70

1. Slots, Suction—Gt. Brit. 2. Airfoils—Aerodynamics—Gt. Brit. 3. ARC RM 2111

PB 92578

Gt. Brit. Air Ministry. Aeronautical Research Committee.

Flight tests on wing sections using the parasol monoplane. Dec 1936. 23p photos, diagrs, drawings, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.00

1. Wings—Aerodynamics—Gt. Brit. 2. ARC RM 1844

PB 93965

Jones, W. Prichard

Aerodynamic forces on wings in non-uniform motion. Aug 1945. 38p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York. $2.05

The problem of determining the aerodynamic forces acting on wings of finite span in non-uniform motion in an incompressible, inviscid fluid is investigated. The underlying theory is outlined in § 2 and some known results for the case of an aerofoil of infinite span are included in § 3. It is shown in § 4, by the use of operational methods, that the growth of lift function $k_1(s)$ corresponding to a sudden unit change of incidence can be derived from the lift function corresponding to simple harmonic translational motion. From results given by the writer for rectangular wings[1] (1943) and tapered wings[2] (1945) in simple harmonic motion the corresponding values of $k_1(s)$ are determined. The growth of lift function $k_2(s)$ for a wing penetrating a uniform vertical gust can then be estimated as shown in § 4 and § 5. By the use of approximate formulae for the growth of lift curves given in Fig. 2, the aerodynamic forces corresponding to

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damped and growing translational oscillations are derived. Certain integrals involved in the theory are evaluated in Appendix I, and in Appendix II the method of determining $k_2(s)$, when $k_1(s)$ is known, is discussed in detail. It is suggested that the aerodynamic forces acting on wings of finite span for any type of motion can best be derived from a knowledge of the forces corresponding to purely divergent motion, which can be calculated by the methods outlined in this report. ARC RM 2117

PB 92921

Jones, W. P. and Skan, Sylvia W.

Methods of calculating derivatives for rectangular wings. Sep 1940. 17p Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.00

In this report a theory for calculating derivatives is described which would involve less computational labour than that suggested by Lyon. From this theory, some approximate methods of calculation are developed and they are used to calculate the derivative values for a rectangular wing of aspect ratio 6 corresponding to certain modes of motion. The values obtained are plotted in the diagrams and compared with the results deduced by Lyon's theory and by Cicala's method. The results derived by the different methods are in fair agreement but owing to the lack of experimental evidence no definite conclusions can be drawn as to their accuracy. The values given by Approximation A of this report should be more accurate than those obtained by Cicala's method as fewer simplifying assumptions are made in the analysis. ARC RM 2215

PB 92585

Jones, W. P.

Negative torsional aerodynamic damping at supersonic speeds. Sep 1946. 6p graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.45

On the basis of the linearised theory for supersonic flow, it is shown that the aerodynamic damping on an aerofoil describing pitching oscillations can be negative for certain axis positions, frequency parameter values, and Mach numbers. The effect which negative damping would have on wing flutter is considered, and a simple criterion for the prevention of one degree of freedom flutter is suggested. As yet, however, there is no experimental evidence to show that the damping can be negative. ARC RM 2194

PB 94427

Kaplan, Carl

Flow of a compressible fluid past a circular arc profile. Oct 1944. 90p graphs, tables Mi $3.75 Ph $11.25

The Ackeret iteration process is utilized to obtain higher approximation than that of Prandtl and Glauert for the flow of a compressible fluid past a circular arc profile. The procedure is to expand the velocity potential in a power series of the camber coefficient. The first two terms of the development correspond to the Prandtl-Glauert approximation and yield the well-known correction to the circulation about the profile. The second approximation, involving the square of the camber coefficient, improves the velocity and pressure fields but yields no new results with regard to the circulation, since the circulation about the profile is an odd function of the camber coefficient. The third approximation, involving the cube of the camber coefficient, permits the use of higher values of the camber coefficient and furthermore yields an improvement to the Prandtl-Glauert rule with regard to the effect of compressibility on the circulation of the circular arc profile. Numerical examples with tables and graphs illustrate the results of the analysis. NACA L-216.

PB 89104

Kloss, M. and Rothert, H.

Wirbelströmung in dem Massivleiter einer nut. (Turbulent flow on slotted rotor plate). n.d. 4p drawings (Text in German) Mi $1.25 Ph $1.25

I. Flow, Turbulent—Germany

PB 93966

Lighthill, M. J.

New method of two-dimensional aerodynamic design. Apr 1945. 55p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York. $3.00

The main object of this report is to describe and illustrate a fairly simple exact method by which aerofoils and other surfaces may be constructed to have desired velocity distributions. Its subsidiary interest is as a progress report on shapes already constructed, which are described in the Appendices and Figures, but should not be regarded as the best which, after further development, the method may be capable of producing. ARC RM 2112

PB 79361

Lighthill, M. J.

Notes on the deflection of jets by insertion of curved surfaces, and on the design of bends in wind tunnels. Sep 1945. 7p drawings Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.90

It is a fact of common experience that small jets of water can be deflected by partial insertion of a finger or other curved surface. The finger experiences a force impelling it towards the centre of the jet, but if this force is withstood by an equal and opposite force the fluid is consequentially drawn round the surface and comes off at an angle. Similar phenomena are observed (Squire; Appendix on the Coanda Effect) with jets of air of high total head surrounded by air of small total head: the former air behaves of course almost like another (immiscible) fluid. The phenomenon can be satisfactorily explained on classical potential

theory. The pressure must be constant on all water-air boundaries, but lower on the surface (so that the force shall be towards the centre). In the sequel various plane flows are built up (in the Helmholtz-Kirchhoff manner) by assuming patterns in the hodograph plane, and these show precisely the characteristics observed in practice: and doubtless what is true of plane "jets" is true qualitatively of jets of more normal cross-section. The principal application is presumably to the control of jet-propelled aircraft. But the mathematics has another application. If wind-tunnel bends are designed according to this pattern (with walls replacing the sides of the jet) the velocity will be constant along the walls except in a small limited region where deleterious effects of adverse velocity gradient can be checked (i) by moving walls (ii) by suction slots. Both alternatives are investigated in § 2 and § 3: the latter is perhaps more satisfactory. A 180-deg. bend with all adverse gradient avoided by use of one suction slot is designed, and drawn out in Fig. 6. Its use would eliminate the need for cascades in wind tunnels and would reduce the number of bends from four to two.

PB 81516

Lock, C. N. H. and others.

Determination of the optimum twist of an airscrew blade by the "calculus of variations". Jan 1942. 27p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.60

The methods of the "Calculus of Variations" have been employed to determine optimum blade angle distributions for airscrews. The calculations of Part I refer to three different forward speeds ($V/a = 0.5$, 0.608 and 0.75, corresponding to 352, 428 and 528 m.p.h. at 21,000 ft.) over a range of mean incidence at each forward speed. The resultant tip Mach number was 0.95 and the plan form (including solidity), number of blades (three) and blade sections (including thickness/chord ratio) were the same as for the airscrew analysed in R. & M. 2021 (original design 14 ft. in diameter to absorb 2,000 b.h.p. at 450 m.p.h. at 21,000 ft.). The calculations were based on the method of R. & M. 2035 using the section C_D data given in Part II of R. & M. 2020. As the efficient absorption of high power at high altitude by an airscrew of limited diameter has become a problem of increasing importance, the work was extended in Part II to cover the case of a four-bladed airscrew absorbing 2,000 b.h.p. at 37,000 ft. An improvement of 0.015 in efficiency was obtained using the thickness-chord and solidity distributions of a good existing design. A note on the derivation of the Betz condition is given in Appendices II and III. ARC RM 2088

PB 81596

Lock, C. N. H.

Examples of the application of Busemann's formula to evaluate the aerodynamic force coefficients on supersonic aerofoils. Sep 1944. 10p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.90

Busemann has given an expression for the pressure in two-dimensional supersonic flow on a surface inclined at a small angle to the free stream, in the form of an expansion in powers of the angle of inclination. The first two terms of this expansion are here applied to give explicit algebraic formulae for the lift, drag and moment coefficients on the most general type of aerofoil surface composed entirely of segments of straight lines and circular arcs. Four examples are worked out in detail: (1) The symmetrical double-wedge section: (2) The cambered biconvex section: (3) The symmetrical double wedge with a hinged flap either (a) at the trailing edge, or (b) at the leading edge: (4) A numerical example of an antisymmetrical shape (faired double wedge). ARC RM 2101

PB 79417

Lock, C. N. H. and others.

Strip theory method of calculation for airscrews on high-speed aeroplanes. Oct 1945. 54p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $2.90

The report describes a simplified 8-point strip theory method of calculating the free-air performance of a propeller up to tip Mach numbers near the velocity of sound. It is based on the assumptions of R. & M. 1674[4] and 1849[5] together with the further simplifying assumption that the (C_L, α) curve also is straight (valid for $J > 1.0$). The report includes tables of parameters (b, τ, ξ and q) which are required in the calculations as functions of J, r_c and N for eight standard radii ($r_c = 0.3$, 0.45, 0.6, 0.7, 0.8, 0.9, 0.95, 0.975) for the range of values of J from 1.0 to 7.0; these are of universal application. In addition, tables of section data (C_L and C_D as functions of M and α) for various section shapes are required; these are given for Clark Y sections over a range of thickness in R. & M. 2036; they were derived, by methods described in R. & M. 2020, from overall measurements of thrust and torque on full scale propellers at low values of J in the Royal Aircraft Establishment 24-ft. tunnel and are subject to revision in the light of subsequent experimental research. The method determines values of torque grading (q_c), thrust grading (t_c) and power loss gradings (P_{c1} and p_{c2}); these are integrated arithmetically to give free air thrust, torque and efficiency (k_T, k_Q and η) by means of integrating coefficients which are also tabulated. A method is described of determining

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the contribution of the portion of the blades inside the radius $r_c = 0.3$. ARC RM 2035

PB 94365

Naiman, Irven

Numerical evaluation by harmonic analysis of the E-function of the Theodorsen arbitrary-airfoil potential theory. Sep 1945. 8p tables Mi $1.25 Ph $1.25

A finite trigonometric series is fitted by harmonic analysis as an approximation function to the ψ-function of the Theodorsen arbitrary-airfoil potential theory. By harmonic synthesis the corresponding conjugate trigonometric series is used as an approximation to the ϵ-function. A set of coefficients of particularly simple form is obtained algebraically for direct calculation of the ϵ-values from the corresponding set of ψ-values. The formula for ϵ is

$$\epsilon(\phi) = \sum_{k=1}^{n} \frac{1}{n} \cot \frac{k\pi}{2n} \left(\psi_{-k} - \psi_k \right)$$

where the summation is for odd values of k only and

$$\psi_k \equiv \psi \left(\phi + \frac{k\pi}{n} \right)$$

NACA L-153.

PB 94070

Perl, W. and Green, L. J.

Two-dimensional incompressible potential flow over corrugated and distorted infinite surfaces. Jan 1945. 28p diagrs, graphs, tables Mi $2.00 Ph $3.75

The two-dimensional incompressible potential flow over corrugations and bumps of arbitrary shape is derived by conformal transformation. The results are compared with those obtained by the methods of thin-airfoil theory. Some discussion is included of the flow over bumps that protrude both inward and outward from a wall. NACA E-38

PB 81518

Preston, J. H.

Effect of the boundary layer and wake on the flow past a symmetrical aerofoil at zero incidence. Part I. Velocity distribution at the edge of, and outside the boundary layer and wake. Jul 1945. 21p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.30

From considerations of the flux in various sections of the boundary layer, the directions of the streamlines entering the boundary layer can be found. This gives an inner boundary condition for the potential flow outside the boundary layer. It is shown that this is equivalent to replacing the aerofoil by a new shape, displaced out from the aerofoil by the amount of the "displacement thickness," and calculating the potential flow about it. This is done by the introduction of a doublet distribution of strength equal to the "Displacement flux." Two alternative methods are given in the Appendix which lead to substantially the same result. In the first the vorticity at any section of the boundary layer or wake is concentrated at its C.G. in the form of a vortex sheet, and the velocity at any point outside the boundary layer can then be computed. This gives an answer almost identical with that obtained from the doublet distribution at the aerofoil surface. In fact the two methods are almost equivalent. The "vortex sheet" method has a possible application in the computation of the vevocity field for the potential flow about an arbitrary aerofoil. In the second method, the velocity increments at any point outside the boundary layer, arising from vortex elements of known strength in the boundary layer and wake are summed. This method gives an answer which differs only slightly from the other two methods, and is much longer. The "doublet distribution" method is therefore recommended as being the simplest, and it has been applied to computing the effect of the boundary layer in the flow about a simple Joukowski aerofoil, where the boundary-layer characteristics were derived from experiment. Within the limits of experimental accuracy, the computed velocity distribution at the edge of the boundary layer agrees with experiment, and except near this trailing edge differs but little from that computed at this surface with the boundary layer absent. An apparent discrepancy between theory and experiment in the wake is traced to the interference (or mixing) between the tunnel wall boundary layers and that of the wing which increases the blockage downstream thus raising the velocity. This makes the attainment of "infinite stream" conditions in a wind tunnel impossible for experiments where critical comparisons between theory and experiment are to be attempted. It may be noted that a very good approximation to the velocities at the edge of the boundary layer can be obtained by ignoring the boundary-layer effects and taking the ordinary potential flow velocities there. The maximum error in the case of the Joukowski aerofoil then occurs at the trailing edge where it is given about 1 per cent. too low. The conclusion is reached that the ordinary potential flow calculations give a very good approximation to the velocities everywhere, and that discrepancies attributed in the past to boundary-layer effects have really arisen because of aerofoil-tunnel blockage and the blockage caused by the mixing of the aerofoil and tunnel boundary layers. The former can be computed or got rid of by means of flexible walls, but the latter cannot be removed, and has the effect of lowering the static pressure in the wake by about $0.02 \times 1/2\, \rho\, U_0^2$. ARC RM 2107.

—82278

PB 81599

Preston, J. H. and Sweeting, N. E.

Improved smoke generator for use in the visualisation of airflow, particularly boundary layer flow at high Reynolds numbers. Oct 1943. 8p photos, drawing Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.70

At the request of the Aerodynamics Division attempts were made by the Fuel Research Station to improve the density of the wood smoke and to reduce the deposits. These they showed were conflicting requirements, and whilst some improvement was effected, it was not sufficient for observation in the new tunnels at high speeds. The Staff of the Director-General of Scientific Research and Development, Ministry of Supply, was then approached and it was decided to develop an oil smoke generator from a simple generator of this type which was demonstrated to us. This has been done successfully. The final apparatus in contrast to the wood smoke generator is light and compact. It takes only a few minutes to start and can be run as long as desired. The oil smoke is a great improvement on the wood smoke both as regards density and freedom from deposits, which cause premature transition. The density and quality of the smoke are now under control. Smokes ranging from a light smoke of bluish white colour to a heavy smoke dense white in appearance (comparable with that from titanium tetrachloride) can be obtained. The oil smoke retains the advantages of the wood smoke in that it is non-corrosive and non-irritant, and the smell can be avoided. A dry solid smoke made by melting a hard wax was successfully generated with the same apparatus. Unfortunately because of its flocculent nature this smoke gave rise to solid deposits when passed through 3/16-in. bore tubing, leading eventually to complete blockage. This seems to be a feature of solid smokes. The apparatus has been used to determine transition and laminar separation points on model wings in a number of the National Physical Laboratory tunnels. Smoke filaments have been maintained in the laminar state up to wind speeds of 180 ft./sec. in the new tunnels. There is much to be said for making a standard practice of visualising boundary layer flow on models, particularly as the technique is simple and rapid. It would greatly assist the interpretation of force measurements and the more detailed explorations of the boundary layer by total head tubes and hot wires. The use of oil smoke is not limited to boundary layer flow visualisation. The apparatus described in this report would seem to be particularly suited for educational work in small demonstration tunnels. ARC RM 2033

PB 93962

Preston, J. H.

Visualisation of boundary layer flow. Nov 1946. 8p Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York. $.45

This note was originally intended to provide information on smoke generators and on the use of smoke for visualising boundary layer flow for the forthcoming monograph on wind tunnel methods. It was suggested that its ecope should be widened to include the various transition techniques which have been developed recently. A fairly complete review of important contributions to this subject previous to 1940 is given, together with the more recent developments, which are briefly described. A bibliography of papers on the subject is included, to which reference can be made for more detailed information. The main conclusions are given in section 4, where the particular suitabilities of the various techniques are indicated. The simplicity and effectiveness of these techniques in their particular spheres of usefulness are noteworthy. ARC RM 2267

PB 94370

Quinn, John H., Jr.

Summary of data relating to the effects of wing machine-gun and cannon installations on the aerodynamic characteristics of airplanes. Jan 1945. 68p photos, drawings, graphs, tables Mi $3.00 Ph $8.75

Data obtained from tests of models and airplanes relating to the effects of various wing armament installations have been collected and analyzed. Three types of gun installation were considered; namely, gun ports (submerged machine guns), protruding machine guns, and cannon. Data have been presented as drag-coefficient increments of one gun based on an area equal to the square of the local wing chord and as incremental lifts for the complete installation based on airplane (or model) wing area. The analysis of these data revealed that a well-designed gun port should have little or no effect on either the drag or maximum lift of an airplane. A well-designed gun opening in the leading edge of a wing should not exceed one-tenth of the wing thickness in height, should have provision for air flow and be fitted with a suitable exit vent, and should be located on or a few percent of the chord below the chord line. Gun ports that did not fall in this category were found to cause drag-coefficient increments up to 0.0018 and to decrease maximum lift coefficient by as much as 0.12. Gun openings at least up to 25 percent of the local wing thickness in height may yield small drag increments, however, provided a faired nose-air-intake shape is used. The smallest drag-coefficient increments for protruding-machine-gun installations were obtained with machine guns that protruded approximately 4 percent of the wing chord ahead of the leading edge of the wing, were located on or near the chord line, and were faired smoothly into the wing contour. Unfaired guns with greater extensions caused drag-coefficient increments up to 0.0010, and guns mounted below the wing caused

increments of 0.0038. Gun extensions of at least 0.25 chord, however, were found to have less adverse effect on maximum lift than shorter extensions. The drag-coefficient increments caused by cannon installations on the wing were decreased approximately 0.0003 or 0.0004 by fairing the cannon into the wing and providing air flow. Cannon located below the chord line caused increments of 0.0038, or nearly four times the increments of an unfaired cannon mounted on the wing. Faired cannon located on the wing generally had little or no effect on maximum lift. Unfaired cannon located on the wing and faired cannon located below the wing were found to decrease maximum lift coefficients by as much as 0.09. NACA L-158

PB 79371

Richards, E. J. and Burstall, F. H.

China clay method of indicating transition. Aug 1945. 9p photos, drawings, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.70

A new method of transition indication has been developed which allows transition to be determined rapidly over the whole of an aeroplane wing. It is recommended that this method be used extensively in low Reynolds number work to safeguard against the dangers of laminar separation and the consequent deceptions of the wind tunnel results. ARC RM 2126

PB 94238

Stivers, Louis S., Jr. and Rice, Fred J., Jr.

Aerodynamic characteristics of four NACA airfoil sections designed for helicopter rotor blades. Feb 1946. 23p graphs, tables Mi $2.00 Ph Ph $3.75

Four NACA airfoil sections, the NACA 7-H-12, 8-H-12, 9-H-12, and 10-H-12, suitable for use as rotor-blade sections for helicopters and other rotary-wing aircraft have been derived and tested. These airfoil sections have comparatively low drags in the range of low and moderate lifts and small pitching moments that are nearly constant up to maximum lift. The undesirable adverse changes in aerodynamic characteristics at higher lifts and the undue sensitivity to roughness, which were found for the airfoil sections reported in NACA CB No. 3113, are minimized for the airfoil sections presented. A comparison of calculated profile-drag losses for a rotor successively incorporating the NACA 3-H-13.5 (reported in NACA CB No. 3113) and the 8-H-12 airfoil sections showed that the NACA 8-H-12 had smaller profile-drag losses in nearly every operating condition presented. From aerodynamic considerations, the NACA 8-H-12 and 9-H-12 airfoil sections appeared more promising for use as rotor blade sections than any other airfoils thus far tested at the NACA laboratories. NACA L-29

PB 81524

Temple, G.

Representation of aerodynamic derivatives. Mar 1945. 12p diagr, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.90

This note summarises our present knowledge of the various mathematical representations of aerodynamic derivatives and of the solutions of the equations of motion, as illustrated by the two-dimensional theory of a plane aerofoil. The following problems are considered: the response to an arbitrary disturbance, a sudden impulse, periodic motion, divergent motion; Bryan's stability derivatives, Duncan and Collar's flutter derivatives; the representation of the aerofoil co-ordinates and of the lift and moment by infinite series; the operational representation of the aero-dynamic forces and the operational solution of the equations of motion. ARC RM 2114

PB 94335

Tetervin, Neal

Approximate formulas for the computation of turbulent boundary-layer momentum thicknesses in compressible flows. Mar 1946. 34p graphs Mi $2.25 Ph $5.00

Approximate formulas for the computation of the momentum thicknesses of turbulent boundary layers on two-dimensional bodies, on bodies of revolution at zero angle of attack, and on the inner surfaces of round channels all in compressible flow are given in the form of integrals that can be conveniently computed. The formulas involve the assumptions that the momentum thickness may be computed by use of a boundary-layer velocity profile which is fixed and that skin-friction formulas for flat plates may be used in the computation of boundary-layer thicknesses in flow with pressure gradients. The effect of density changes on the ratio of the displacement thickness to the momentum thickness of the boundary layer is taken into account. Use is made of the experimental finding that the skin-friction coefficient for turbulent flow is independent of Mach number. The computations indicate that the effect of density changes on the momentum thickness in flows with pressure gradients is small for subsonic flows. NACA L-119.

PB 94342

Tucker, Warren A. and Wallace, Arthur R.

Scale-effect tests in a turbulent tunnel of the NACA 65_3-418, $a = 1.0$ airfoil section with 0.20-airfoil-chord split flap. Sep 1944. 19p drawing, graphs, table Mi $1.75 Ph $2.50

The effect of Reynolds number on the aerodynamic characteristics of a low-drag airfoil section tested under conditions of relatively high stream turbulence was determined by tests in the LMAL 7- by 10-foot tunnel of the NACA 65_3-418, $a = 1.0$ airfoil section with a split flap having a chord 20 percent of the airfoil chord. The Reynolds number ranged from 0.19 to 2.99×10^6; the Mach number attained was never greater than 0.10. The data are presented as curves of section angle of attack, section profile-drag coefficient, and section

pitching-moment coefficient against section lift coefficient for various flap deflections. The maximum lift coefficient increased with Reynolds number. Deflecting the flap added an increment of maximum lift coefficient that seemed to be almost constant at all Reynolds numbers. The slope of the section lift curve with flap deflected showed no consistent variation with Reynolds number, although the slope of the section lift curve for the plain airfoil increased up to a Reynolds number of about 1.0×10^6 and then remained nearly constant up to a Reynolds number of about 3.0×10^6, the limit of the tests. For flap deflections about 15°, the slope of the section lift curve decreased with increase in flap deflection. The section drag coefficient with flap deflected remained almost constant with Reynolds number, although the section drag coefficient for the plain airfoil decreased up to a Reynolds number of about 0.8×10^6 and then remained nearly constant to a Reynolds number of about 3.0×10^6. The pitching-moment-coefficient slope with flap deflected was erratic, but the pitching-moment-coefficient slope for the plain airfoil became slightly more negative with increasing Reynolds number. NACA L-128.

PB 92653

Ward, G. N.

Note on compressible flow in a tube of slightly varying cross-section. Dec 1945. 9p diagrs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.55

Non-uniform compressible flow in a tube is investigated using the approximate linearized equation for the velocity potential. It is found that for supersonic flow, stationary oscillatory disturbances result from initially non-uniform conditions and these persist down the tube. For subsonic flow in a straight tube no oscillatory disturbances occur and any initial nonuniformity is damped out downstream in general. A method of calculating the supersonic flow in a tube of slightly varying cross-section is indicated. ARC RM 2183

PB 92576

Yound, A. D. and Owen, P. R.

Simplified theory for streamline bodies of revolution, and its application to the development of high-speed low-drag shapes. Jul 1943. 23p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.30

A simplified theory is developed based on the assumption that the disturbance velocities due to the body are small compared with the main stream velocity. Thereby, a rapid and simple method is developed for producing bodies of revolution having velocity distributions in axial flow conforming to specified types. Hence, bodies suitable for high speeds can be produced. Some examples are given. In a later report it is hoped to give full details and dimensions for a family of such bodies having pointed tails and conforming to the "roof-top" type of velocity distribution. The theory has also been applied to the direct problem of determining the velocity distribution for a body of given shape, and the resulting method though simple and rapid has been found to give reasonably accurate results for bodies of thickness up to 30 percent. The velocity distribution on a body of revolution at a small angle of yaw has also been considered, and again it has been found to introduce simplifications which provide a method of determining this distribution very quickly with little loss in accuracy. ARC RM 2071

Rockets and Jet Propulsion

PB 88037

Kellogg, M. W. Co.

Ceramic research (extracted from monthly progress reports entitled: "6000 pound thrust jet propulsion unit"). n.d. 48p photos, diagr, tables Mi $2.00 Ph $5.00

1. Ceramic materials—Research—Germany 2. Refractory materials—Research—Germany 3. Jet propulsion units—Materials—Germany 4. AMC E I

PB 94114

Pinkel, Benjamin and others.

Design of nozzles for the individual cylinder exhaust jet propulsion system. Apr 1941. 47p photos, drawings, graphs Mi $2.50 Ph $6.25

This report relates to the design of exhaust-stack nozzles for individual cylinder exhaust-gas jet propulsion and presents the results of tests on the effect of nozzle area on jet thrust and engine power. The tests were made on a single-cylinder engine mounted on a dynamometer stand. A satisfactory method of correlating the test data for various engine-operating conditions is developed. Convenient curves are given for designing exhaust-stack nozzles and for predicting exhaust-gas thrust. The thrust horsepower provided by the exhaust jet was found to be appreciable. An example calculated for the case of an airplane velocity of 350 miles per hour, altitude of 20,000 feet, and inlet manifold pressure of 45 inches H_g absolute, gave a value of exhaust jet thrust horsepower of 16 percent of the engine thrust horsepower. NACA E-83

PB 96225

Schmitt (Dr.)

Calculation of the mean gas temperature behind rotors of TL units. Apr 1943. 4p drawing, graph Mi $1.25 Ph $1.25

Legends in German and English

Part of this report may not reproduce well

Determination of the mean gas temperature "t_7" behind the turbine rotor, is important in the testing of TL jet units. At present, measurement by standard temperature measuring devices is too uncertain; the most accurate means is still that of

calculating the temperature from the measured air and fuel consumption in the combustion chamber, in which regard the efficiency of combustion in the chamber, plays a part. Micro GDC 3E/13T, translation

PB 94081

Turner, L. Richard

Auxiliary jet propulsion for assisting take-off. May 1940. 31p table, graphs Mi $2.25 Ph $5.00

1. Airplanes—Take-off 2. Jet propulsion—Assisted take-off

PB 81852

U. S. Army Air Forces and U. S. Bureau of Aeronautics.

Service instructions for model J35-C-3 turbo-jet engines. Jun 1947. 4p tables Mi $1.25 Ph $1.25

1. Jet engines, Turbo-jet—Maintenance and repair 2. J35-C-3 (Turbo-jet engines) 3. AAF TO 02-105CA-2

PB 87140

U. S. Army Air Forces.

Set: Assembly and disassembly, engine, turbo-jet, flight test, engineering development. Feb 1947. 7p tables Mi $1.25 Ph $1.25

1. Jet engines, Turbo-jet—Maintenance and repair 2. AAF TO 00-30-784

PB 88038

U. S. Army Air Forces. Air Materiel Command.

Test procedures for ceramic materials for application to aircraft power plants. The tensile test. Jan 1948. 10p Mi $1.00 Ph $1.00

1. Rockets—Jets 2. Ceramic materials—Tests

PB 94629

Wagner, Carl

Influence of non-uniform mixing of fuel and oxygen on characteristic data of a rocket motor. Aug 1947. 10p Mi $1.25 Ph $1.25

This report considers the influence of non-uniform mixing of fuel and oxygen, or oxygen carrier, on the performance characteristics of a rocket motor, particularly the exhaust velocity and specific consumption of propellants per unit thrust. After the introduction of simplifications, the average square of the deviations of the local mixing ratios from the mean mixing ratios is calculated from the ratio of the observed exhaust velocity to the theoretical exhaust velocity for uniform mixing and isentropic expansion. Numerical values are given for the A4 rocket motor. The influence of non-uniform mixing on the exhaust velocity of a jet motor with a large excess of air is considerably smaller than that in a rocket motor with liquid propellants for approximately stoichimetric combustion. Therefore, in general, greater ratios of observed exhaust velocity to calculated exhaust velocity are to be expected in jet motors than in rocket motors. For the same reason, a rather non-uniform mixing of fuel and air may be advantageous in the operation of jet motors, because protection of the walls from high temperatures may be more important than a small loss of performance. ORDD R TR 22

Land Transportation

PB 95871

Aniansson, Gustaf och Noren, Olle

Kopplingar till tvaaxlade traktordragna arbetsvagnar. (Hitches for tractor-drawn four-wheeled wagons). 1948. 54p illus, table, drawings (Text in Swedish) Mi $2.75 Ph $7.50 Summary in English

Gordbrukstekniska Institutet, Uppsala, Sweden. Meddelande no. 219

The present bulletin consists partly of a short survey of some fairly common types of hitches, and partly of the results of investigations and experiments which the Swedish Institute of Agricultural Engineering has carried out with hitches and drawbars for tractor wagons during 1947. The hitches can be divided into the following main types: 1. Tongue—drawbar—pin. This is the commonest type of hitch for tractor wagons. 2. Hook and ring. Used on military vehicles and to a certain extent on tractor wagons. 3. Swivelling hitches. Up to the present used mostly on car trailers. 4. Ball and socket hitches. This type also is commonest on car trailers, but one type is used to quite a large extent for tractor wagons. 5. >> Frölunda >> tractor hitch. This type of hitch differs from the others mainly in that coupling and uncoupling is done between the wagon and its drawbar instead of between the tractor drawbar and the wagon drawbar. 6. >> Effektiv >> tractor hitch. This hitch is characterised by the fact that the tractor and wagon do not have to be so carefully placed in relation to one another before coupling can take place: further, the hitch can be maneuvered from the tractor driver's seat. One usually distinguishes between two types of tractor wagon drawbars, the triangular drawbar and the pole drawbar. With the so-called telescopic drawbar, which belongs to the pole drawbar type, coupling of the hitch is simplified by the fact that one of the two tubes of which the drawbar is made up can be slid to and fro within the other. The requirements, with which a hitch should comply if it is to be satisfactory for use on tractor wagons and in tractor >> trains >>, can be summarised as follows: 1. Reliable operation. 2. Good durability. 3. Large wearing surfaces. 4. Large range of movement without excessive play. 5. Quick coupling and uncoupling should be possible, even under unfavorable conditions, and should be done by one man. 6. The risk of accidents when coupling should, as far as possible, be eliminated. 7. It should be possible,

when operating shuttle traffic, to change quickly from tractor draught to horse draught and vice versa. 8. The hitch must not be too expensive. At the Institute two different types of hitch and a drawbar for tractor wagons have been developed. All are characterised by the fact that tractor and wagon do not have to be very carefully placed in relation to one another when coupling, thus making this operation quick and easy to carry out. The hitches consist of a guide bar fixed to the one vehicle and a pin with a locking device fixed to the other. When coupling, the vehicles are brought together so that the pin can be placed within the limits of the guide bar. After this has been done, the tractor is driven forwards, and the pin follows the guide bar until it engages in the >> eye >> at the foremost end, and is locked in position (automatically on the one hitch, by hand on the other). The tractor driver can maneuver the hitch without leaving his seat. The drawbar for tractor wagons is made with a swinging hitch arm, to which any suitable hitch device can be attached. When coupling, the hitch arm can be swung from side to side and pushed backwards and forwards without moving the main body of the drawbar. When the tractor is driven forward after coupling, the hitch arm is automatically guided to its normal position and locked there, and the drawbar then functions as an ordinary rigid triangular drawbar. A new type of safety hitch pin has been constructed. The pin is made with a spring-loaded safety clip, which prevents the pin from jumping out of place, thus uncoupling the hitch. In addition to the methods previously used for coupling one wagon behind another, a method has been developed at the Institute by which the tractor driver can carry out this operation by himself. The method, which is illustrated in Fig. 59, requires the use of drawbars with swinging hitch arms and a short length of coupling chain. Time studies which have been carried out have shown that such drawbars and hitches which make it possible to couple vehicles together without having them carefully placed in relation to one another bring about considerable savings in the time required for coupling when compared with other methods. In addition, the vehicles can be coupled easily and without the risk of serious accidents occurring.

PB 84436s

Bayerische Motoren Werke, A. G., Munich, Ger.

Sets of lists of components and drawings for the BMW Motor cycle models R-51, R-61, R-66, and R-71. 1935-1943. 3p Mi $1.25 Ph $1.25

Abstract of Micro FIAT K 223, Frames 1-586 (PB 84436); Micro FIAT 224, Frames 587-1006 (PB 84427); Micro FIAT 225, Frames 1007-1168 (PB 84517); Micro FIAT K 226, Frames 1169-1246 (PB 74612)

1. Micro FIAT K 223, Frames 1-586, abstract 2. Micro FIAT K 224, Frames 587-1006, abstract 3. Micro FIAT K 225, Frames 1007-1168, abstract 4. Micro FIAT K 226, Frames 1169-1246, abstract 5. Micro BIOS FDX 186, abstract 6. Micro BIOS FDX 187, abstract 7. Micro BIOS FDX 188, abstract 8. Micro BIOS FDX 189, abstract

PB 95540

France. Ministere de la Production.

Reports covering: Tests of automobile engines; wind tunnel tests of aircraft engines; development of streamlined Tatra and Daimler-Benz automobiles; ignition lag and fuel analysis, etc. 1937-1941. 680f (Text in German) Mi $9.00 Enl Pr $87.50

See Pb 95540s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Engines, Aircraft—Wind tunnel tests—Germany 2. Engines, Automotive—Tests—Germany 3. Fuels—Analysis—Germany 4. Micro FIAT A 357, Frames 1-611

PB 96790

McCutcheon, W. A.

Management of federal motor vehicles. Dec 1948. 7p Mimeo: $.25

Appendix B to the minutes of the Dec. 2, 1948 meeting of the Interdepartmental Motor Equipment Committee

1. Motor vehicles, Federal—Management—United States 2. U. S. Interdepartmental Motor Committee

PB 53774r

U. S. Air Force.

Miscellaneous: Serviceability standards for domestic issue and overseas shipment of USAF assigned vehicles and motorized equipment. Jan 1948. 7p Mi $1.25 Ph $1.25

1. AAF TO 00-25-61-1

PB 96488

U. S. Interdepartmental Motor Equipment Committee.

Preventive maintenance plan for government motor vehicles. Oct 1948. 33p diagrs, tables Mimeo: $1.00

1. Motor vehicles—Maintenance and repair

Marine Transportation

PB 95853

Hammar, Hugo and others.

Statens Skeppsprovningsanstalt. (The Swedish State Shipbuilding Experimental Tank). 1942. 91p illus, drawings (Text in Swedish) Mi $4.25 Ph $12.50

Summary in English

Sweden. Staten Skeppsprovningsanstalt, Gothenberg Meddelande no. 1, 1942

Statens Skeppsprovningsanstalt (The Swedish State Shipbuilding Experimental Tank) came into being in the autumn of 1940, and is located in Göteborg, the principal shipbuilding and shipping

center in Sweden. The main data of the Tank are as follows:

Basin:

Length overall = 260 meters (~850 feet)
Breadth = 10 >> (~ 33 >>)
Depth of water = 5 >> (~ 16.5 >>)

Towing Carriage:

Net weight = 14 tons
Maximum speed = 14 meters/second (~46 feet/sec.)
Minimum >> = .028 >> >> (~ 1 in./sec.)

Total Cost:

Swedish kronor 1,750,000 (~£100,000).

In Chapter I, Dr. Hugo Hammar gives a brief history of the origin of the Tank and mentions those who have played a prominent part in connection with it. An account is given of the considerations which lead to the dimensions finally agreed upon, and also details relating to the costs. The need of an Experimental Tank in Sweden had long been felt when in 1934, a Royal Commission was appointed to deal with the question. On the Commission's recommendation the Swedish Parliament decided in 1936 that such a Tank should be built out of public funds and at the same time authorized the initial grant for this purpose. Work was commenced in 1937 and the plant was ready to be taken into use in the autumn of 1940. The Royal Commission had originally proposed a total length of the basin of 150 meters (~490 feet) and a maximum speed of the towing carriage of 8 m/sec., but taking into consideration the desirability of being able to carry out tests for high-speed vessels the figures were, however, finally altered during the course of construction to 260 meters and 14 m/sec. In Chapter II Professor H. F. Nordström, Director of the Tank, gives a brief survey of the general principles for model experiments, and also a general description of the plant. The building consists of a central building of stone and a low wooden building of semicircular shape over the basin. The central building contains the main hall in two stories. The office premises are situated above the workshops, which are at the side of the hall, and the electric transformer and converter station, store rooms and the central heating plant are accommodated in the basement. For the purpose of damping the waves in the basin a "wave-trap" is provided at its further end, similar to the one first used for the Tank in Berlin. As a complement to the "wave-trap" there is also a loose wooden "shore". A wave-maker is to be installed but has not yet been completed, and the necessary arrangements are already made for providing a false bottom in the future. In order to protect the water against vegetation the window surfaces in the wooden building over the basin are relatively small and face north-east. A quick-filter has also been provided. The operators' balcony is situated at the further end of the basin. In Chapter III Professor H. Wernstedt, the architect of the building, deals with some of the points which have influenced the decision to build the Tank on rocky ground; and he also mentions the heating and ventilation problems. In Chapter IV Professor Sven Hultin discusses the construction of the basin. Amoung the requirements which must be demanded of the water basis are that it is sufficiently strong to withstand the pressure of the water, that it is water-tight, and that it keeps its form so that the rails do not change their position. The chances to fulful all these conditions were favorable at Göteborg as the basin could be built wholly on a solid rock foundation or on concrete pillars resting on the rock. The basin is cast in reinforced concrete; its cross-section is shown. It is cast direct on the rock in the middle and has possibilities to expand towards the ends. The bearings ("glidfog") are placed in three rows underneath, one under the center and the others direct under the side walls. The bearings consist of plates of stainless steel (40 cm x 40 cm) greased with graphite. In the center they are placed at a distance of 2.5 meters (~8 feet) and under the side walls at 5 meters (~16 feet). Similar guide plates are also provided at the sides of the basin. The basin was cast in lengths of 15 meters (~50 feet) with intervening expansion joints. Up to now no leaks have been observed in the basin. In Chapter V Mr. R. Rödström, Principal Assistant of the Tank, reports on the measuring and testing equipment. The laying of the rails has been carried out with an accuracy of 1/10 mm. The basin's water surface was not used as a measuring basis but instead the water surface in 4.5 meter channels of U-iron. A wire hung along the basin was used as measuring basis for adjusting the steering rail laterally. The towing carriage is of steel-tube construction and weighs about 14 tons. The diameter of the wheels is 1.4 meters (~4.5 feet). Each wheel is driven separately by an electric motor of 26 kW at 1100 r.p.m. It is equipped with four brake systems. The carriage is steered by means of two pairs of guide rollers running against one of the rails. At present the models are made of wood but it is later intended to make them of paraffin wax. The delivery of the model-shaping machine ordered from R. W. Munro, Ltd., London, has not yet been effected owing to the prevailing political conditions, and for the time being, therefore, the wooden models are made in a provisionally erected machine of our own construction. The propeller models are at present entirely hand-made, but a propeller milling machine is under construction. The propeller measuring machine, of our own construction, is already installed. The resistance dynamometer is constructed by Dr. Fr. Gebers, of Vienna. There are at present three inside propeller dynamometers, two of which are of Dr. Gebers' construction, while the third has been constructed by Mr. R. Rödström in accordance

with a partially new principle. When experimenting with a free running propeller one of the propeller dynamometers is mounted in an iron casing shaped like a ship. In Chapter VI Mr. K. Tiselius, of ASEA Electric Company, accounts for the electrical equipment. For the electrical propulsion of the towing carriage of the tank, the available power supply at 10 kV, 50 cycles, is converted by a Ward-Leonard set which is driven by a synchronous motor running at 1500 r.p.m. The D. C. Leonard generator for 0-600 V has a maximum output of 390 kW. The carriage is equipped with 4 D. C. motors for the 4 wheels of the carriage. The motor armatures are connected in series and fed from two of the 6 overhead wires. At the further end of the tank there is an operators' balcony with the control desk. The final constant speed to which the carriage has to accelerate is pre-set by means of speed regulating rheostats at the control desk. A current regulator working in co-operation with the speed regulator in a "knee-curve regulation" controls both the acceleration and deceleration of the carriage, the regulating current being dependent on the speed setting. The accelerating distance from the starting at rest to the constant test speed and the braking distance from the constant test speed to rest must be kept to a minimum. The maximum test speed possible is 14 m/sec. (~46 feet/sec.) and at this speed a constant speed run of 110 meters (~360 feet) is available out of the total length, 260 meters (~850 feet). When working at the highest speeds, besides electrical braking, mechanical braking is also employed at the finishing end of the run. The brake is comprised of metal shoes carried on the carriage. For the last 45 meters (~150 feet) of the tank a steel beam track is laid running parallel to the main carriage track. The braking shoes grip this track, gradually lifting the carriage wheels from the main track. The time taken in changing from acceleration to constant speed has to be short. This problem is difficult as the regulating circuit includes the lag of the magnetic fields of the exciter and the generator, and the inertia of the carriage and its rotating driving machinery. Instability or hunting must be avoided. The problem is solved by means of the ASEA quick-acting regulator system, which has as one of its vital elements a so called "D. C. transformer" (stabilizing transformer) designed for the best inherent characteristics. The sensing circuit of the speed regulator is connected in a compensated circuit for zero current through the sensing coil ($i_k = 0$). The tachometer generator is direct coupled to one of the carriage motors. The sensitivity is more than 20 times the normal and the deviation from the preset speed is less than 1/10%. The accuracy is of great value for the test performance and can be maintained during the whole speed range of 28 mm/sec. to 14 m/sec. (~1 in./sec. to 46 feet/sec.), that is in the ratio of 1:500. At lower speeds, however, another similar tachometer generator has to be used which is geared up in the ratio of 1:10 from its motor shaft. Complete independence is obtained from the voltage and frequency variations of the primary A. C. supply, from the temperature variations in the windings of the machine and the regulator circuits as well as from the varying voltage drops caused by different load currents. The starting of the carriage is very simple: the operator of the control balcony brings the main control switch to the "Forward-Running" position. The carriage increases its speed at constant acceleration and when the pre-set speed is reached it is maintained constant by the automatic speed regulator. To stop the carriage the switch is brought to the "Forward-Braking" position and the carriage is quickly brought to rest at constant deceleration, the 4 motors working as braking generators and giving the kinetic energy of the carriage to the A. C. network via the Ward-Leonard set. If the operator fails to stop the carriage in due time, an automatic device comes into operation and stops the carriage. The return of the carriage to the starting point is easily effected, but always at low speed, by similar operations to those described for "Forward-Running." The testing engineers are relieved of the function of keeping the speed constant (which can only be efficiently taken care of by the automatic quick-acting regulator) and they can thus concentrate fully on the actual testing. However, an emergency stop can be effected from the carriage at any point of the test run by means of a hydraulic brake or by a switch which disconnects the motors from the Ward-Leonard generator simultaneously connecting them to a common braking resistance. The electrical equipment and the carriage were delivered by the ASEA Electric Company, Sweden. In Chapter VII Professor H. F. Nordström gives an account of the organization of the Establishment and its various functions. Primarily the Experimental Tank is meant to be a testing institution, but research work is also included in the program for the furtherance of which two funds totalling one million Swedish kronor (~£60,000) are provided. A close connection exists between the institution and the Shipbuilding Department of Chalmers University of Technology at Göteborg, and among other things the students have access to the laboratory during the fourth year of their course. The Tank is a State institution and comes under the jurisdiction of The Ministry of Commerce. The annual budget amounts at present to about 125,000 Swedish kronor (~£7,500); it is to be run on business lines and, if possible, to be made self-supporting. The management of the Establishment is vested in a Board of eight members appointed by the Crown, while the active management is in the hands of the Director and the Committee consisting of five members elected by the Board in conjunction with Chalmers University of Technology. A staff of 18 is at present employed.

—82278

PB 94675

Lehmann, Gunther

Auswertung von Leistungsmessungen. (Analysis of ship performances). 1942. 6p photo, drawings, graphs, tables Mi $1.25 Ph $1.25

Results of tests carried out by means of a Maihak torsiograph. A photograph, data tables, diagrams, & graphs are included.

PB 95854

Nordström, H. F.

Försök med fiskebåtsmodeller. (Tests with fish boat models in connection with screw propellors). 1943. 32p tables, drawings (Text in Swedish) Mi $2.25 Ph $5.00

Summary in English

Sweden. Statens Skeppsprovningsanstalt, Gothenberg, Meddelande no. 2, 1943

The paper gives an account of tests carried out in the Swedish State Shipbuilding Experimental Tank at Göteborg with three fishing boat models in combination with three types of model screw propellers. The tests in question were made during 1941 and 1942. Model 17 is a copy of an existing fishing boat built of wood—"Brita" of Donsö—typical, as regards form and size, of the fishing boats at present used on the west coast of Sweden. In model 18 the fore body and the breadth of the vessel were retained the same but the after body was made finer and fitted with a cruiser stern. Thus the length was increased. In model 19 the length was further increased and the breadth was reduced. The principal dimensions of the ships are shown in Table 1. In fig. 4 the contours of the three models are indicated for the purpose of comparison. The models were made of wood to a scale of 1/6. Propeller P6 is a copy of the existing propeller of "Brita". This ship has a two-bladed propeller with adjustable pitch. The blades of the model propeller could be adjusted by hand. In the initial position the face side of the blade is a helicoidal surface of uniform pitch. P6 was designed for trawling purposes and the diameter was therefore made relatively large. Propeller P14 is designed for free running (without towing). The boss of P6 was used. Propeller P15 is of the same blade form as that of P14, but has plane blades with symmetrical sections. The same boss as for P6 was used. Table 2 gives the principal data of the model propellers, which were used in the tests. The dimensions of the ship propellers are also given. Resistance tests with the models and open water tests with propeller P6 were made. Self propulsion tests were carried out in order to study further the effect of change of hull form upon resistance and to study the effect of the different propeller designs upon the propulsive efficiency and the trawling efficiency. The self propulsion tests were made with the models running freely (ahead and astern) as well as under trawling conditions (3 knots and at zero speed). Astern tests at zero speed were also carried out. Resistance tests and self propulsion tests were made in smooth water and with the same immersed ship volume 112 m^3 ($\cong$ 113 tons in salt water) in order to obtain a direct comparison. The resistance tests were run without a rudder. Model 18 was also run astern. The results are given in Fig. 8 and in Table 3. The values are for the ships in salt water. Open water tests were carried out on propeller P^6 only. Each blade was in the initial position. The results of these tests are shown in Fig. 9. The principal part of the investigations was concerned with the self propulsion tests. For these tests the models were provided with rudders as shown in Fig. 1-3. It was assumed that the engine (internal combustion type) was capable of developing 125 H.P. at the tail shaft at 325 R.P.M. The principal object of the investigations was to obtain, by means of the suitable adjustment in the pitch of propeller, information on the following points, viz: A. Maximum speed when running free; 125 H.P., 325 R.P.M. B. S.H.P. at 8,5 knots; 325 R.P.M. C. Maximum pull at 3 knots; 125 H.P., 325 R.P.M. D. Maximum pull at zero speed; 125 H.P., 325 R.P.M. E. Maximum pull when going astern at zero speed; 125 H.P., 325 R.P.M. F. Maximum speed when running free astern; 125 H.P., 325 R.P.M. All tests were conducted according to the Continental method with a tow rope force applied to the model equal to the skin friction correction for ship, reduced to model scale at each speed. Each test was carried out in three series with different pitches. By interpolation and extrapolation respectively, the points quoted above could be solved. The first part of the investigation comprised tests with the three models in combination with one propeller, namely P^6. Information regarding points A-D was obtained. The results are shown in Tables 4-7. The next part of the investigations had as its object a closer study of the propeller problem and comprised tests with model 18 in combination with the three propeller models. In this way points A-F were dealt with, but with propeller P^6 only points A-D were dealt with. The results are shown in Tables 8-11 with reference to ahead conditions, and in Tables 12-15 with reference to astern conditions. Reference is made in the Tables to the corresponding Figures. From Tables 13 and 14 will be seen the difference in the astern effect when the direction of rotation of the propeller shaft is unchanged and when it is reversed. When going astern by reversing, the propeller, however, is usually not controllable. If the pitch is fixed at 0.920 m, which, according to Table 8, is the best when going ahead, the result, when going astern be reversing, is shown in Table 15. In order to obtain a proper comparison no allowances have been made for roughness, wind, etc. In several cases it was possible to calculate the wake fraction and the thrust deduction coefficient. The results of these calculations are shown in Tables 16-19. In the Figures and Tables the most important definitions have been indicated in English.

PB 96942

U. S. Bureau of Ships
General arrangement of LH engine. n.d. 150f drawings Mi $5.75 Enl Pr $20.00
1. Engines, Marine—Design 2. LH (Engine) 3. Micro NAVSHIPS D-7270, Frames 1-150

PB 97183

U. S. Bureau of Ships
Instructions for the caret operation of the model 12-567 ATL general motors diesel engine for LST vessels. Jun 1943. 167f Mi $6.25 Enl Pr $22.50
1. Engines, Diesel—Operating instructions 2. 12-567 ATL (Diesel engine) 3. LST (Vessels) 4. Micro NAVSHIPS D-6895, Frames unnumbered

MISCELLANEOUS

PB 89310

Arnold-Alyabev, V. I.
Thickness of Kara sea ice, its structure and porosity according to data collected by the expedition of the ice-going steamer Malygin in 1934. Leningrad 1938. Transactions of the Arctic research institute, v 110. Studies on the properties of ice, part 1, art 6. 1934. 54f photos, maps, graphs, tables Mi $2.75 Enl Pr $8.75
1. Ice conditions—Russia

PB 93879

Austin, Morris E. and others.
Reconnaissance soil survey of Japan, Kanto plain area. Aug 1948. 156p photos, fold maps, tables Mi $6.00 Ph $20.00
1. Soils—Surveys—Japan 2. SCAP NRS 110-A

PB 95573

Bennett, Ralph D.
Need for cooperation between electrical engineers and physicists. Jan 1948. 3p Mi $1.25 Ph $1.25
Reprint from American Journal of Physics, Vol. 16, No. 1, Jan 1948
1. Engineering, Electrical 2. Physicists

PB 89319

Berg, A. E.
Synoptic conditions producing downpours in European U. S. S. R. Geophysical review, 1929, v 7, no 1, p 41-48. 1929. 19f tables Mi $1.75 Enl Pr $3.75
1. Rain and rainfall—Russia

PB 85020

Bruggencate, P. Ten. and others.
Astronomy, astrophysics and cosmogony. 1948. 449p (Text in German) Mi $9.00 Ph $56.25 Mimeo: $3.00
1. Astronomy—Germany 2. Astrophysics—Germany 3. Cosmogony—Germany 4. U. S. Field Information Agency, Technical

PB 95677

Bünning, Erwin and Kühn, Alfred
Biology, Part 1. (FIAT Review of German Science 1939-1946). 1948. 213p (Text in German) Mimeo: $3.00 Mi $7.75 Ph $27.50
1. Biology—Germany

PB 89345

Derlugin, K. M.
Introduction to the study of the Bering and Chukchee Seas. 1937. U. S. S. R. State hydrological institute, Leningrad, and Pacific institut of fisheries and oceanography, Vladivostok, Exploration of the fareastern seas, issue 5, p 5-6. 1937. 7f Mi $1.25 Enl Pr $2.50
1. Hydrology—Russia

PB 88885

Frenzel, P.
Protoplasmastörungen in pflanzlichen zellen. (Protoplasmic disturbances in plant cells). n.d. 4p diagrs (Text in German) Mi $1.25 Ph $1.25
1. Plant cells—Germany

PB 92642

Gt. Brit. Dept. of Scientific and Industrial Research, Fuel Research. Greenwich, Eng.
Winning, harvesting and utilization of peat. Oct 1947. 30p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.20
1. Peat—Gt. Brit.

PB 81490

Gt. Brit. Forestry Commission.
Studies on tree roots. 1932. 88p photos, diagrs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.15
1. Tree roots—Gt. Brit. FC B 13

PB 95558

Hagan, Eugene T.
Test of welder's helmets, (commercial). Oct 1948. 6p illus Mi $1.25 Ph $1.25
1. Helmets—Tests 2. Helmets, Welders

PB 93423

Hall, John F.
Thermal test of quartermaster evacuation casualty bag. Jun 1948. 10p photo, graph, table Mi $1.25 Ph $1.25
1. Casualties—Evacuation 2. Bags, Casualty

PB 93427

Hollifield, Robert G.
Final development status of kit container, fighter pilot, seat type, survival. Jul 1948. 9p photos Mi $1.25 Ph $1.25
1. Kits, Aircraft—Survival

PB 94967

Hoseason, D. B.

Education and training for engineers in Great Britain. Transactions of Chalmers university of technology no. 75, Gothenburg, Sweden. 1948. 12p Mi $1.75 Ph $2.50

I. Engineering—Study and teaching—Gt. Brit.

PB 94966

Jagitsch, Robert

Über die umsetzung von steinsalz mit röstgas. Transactions of Chalmers university of technology no. 76, Gothenburg, Sweden. 1948. 16p graphs, tables (Text in Swedish) Mi $1.75 Ph $2.50

I. Rock salt—Sweden

PB 97129

Joint Intelligence Objectives Agency.

Accession list of GDC reports, Volume I. Dec 1948. 61p Mimeo: $1.00

I. Gt. Brit. German Document Center

PB 96941

Joint Intelligence Objectives Agency.

JIOA subject index of scientific and technical reports. Volume I, unclassified CIOS Reports. Dec 1948. 270p Mimeo: $3.00

I. Combined Intelligence Objectives Sub-Committee

PB 94247

Kamm, Robert W. and Malvestuto, Frank S., Jr.

Comparison of tail and wing-tip spin-recovery parachutes as determined by tests in the Langley 20-foot free-spinning tunnel. Mar 1946. 52p photos, drawings, graphs, tables Mi $2.75 Ph $7.50

Tests of spin-recovery parachutes on six models of typical fighter and trainer airplanes were conducted in the Langley 20-foot free-spinning tunnel to obtain data for correlating model and full-scale results. Parachutes attached to the tail of the models, to the outer wing tip (left wing tip for a right spin), to the inner wing tip, and to both wing tips were tested. The results indicated that parachutes of the same size and type were more effective as spin-recovery devices when they were attached to the outer wing tip in the spin than when they were attached to the tail. The diameter of the outer wing-tip parachute required from 4 to 7 feet. Parachutes attached to the inner wing tip would not effect recovery. When parachutes attached to both wing tips were used for recovery, the parachute diameters required were of the same order as for tail parachutes. The diameter of the tail parachute required for a 2-turn recovery by parachute action alone varied from 6.5 to 12.5 feet for the airplane designs used. NACA L-38.

—62278

PB 89424

Lir, E. S.

Synoptic conditions of glazed frost in the European part of the U.S.S.R. Journal of geophysics and meteorology, 1927, v 4, no 1, p 24-38. 1927. 18f Mi $1.75 Enl Pr $3.75

I. Frost—Russia

PB 89438

Makkaveev, V. M.

Processes of growth and decay of short waves and the effect of fetch upon their height. Proceedings of the State hydrological institute, issue 5, p 3-15. n.d. 25f Mi $2.00 Enl Pr $5.00

I. Waves, Ocean—Russia

PB 93560

Miyadi, M. and Hagihara, Y.

Longitudes. Commission 18. May 1948. 6p Mi $1.25 Ph $1.25

Contains also: Miyadi, M. and Hagihara, Y. Proposal for cooperative researches by way of the wireless time signals. Commission 31

I. Longitude—Japan 2. Astronomy—Research—Japan 3. Time signals—Japan 4. Astronomy—Observations—Japan 5. Tokyo. Astronomical Observatory—Commission 18 6. Tokyo. Astronomical Observatory—Commission 31

PB 93562

Miyadi, M. and others.

Variations of latitudes. Nine reports. Commission 19. n.d. 16p tables Mi $1.75 Ph $2.50

I. Stars—Observations—Japan 2. Astronomy—Research—Japan 3. Latitude variation—Japan 4. Mechanics, Celestial—Japan 5. Tokyo. Astronomical Observatory—Commission 19

PB 94747

Morsing, Johan

I. Laboratorieförsök över rostningsförloppet av järn-plåt i växelvis beröring med vatten och bensin. (Laboratory tests on the progress of corrosion of steel plate alternately in contact with water and petrol (gasoline)). 2. Bestämning av syre i bensin. (Determination of oxygen in petrol (gasoline)). 1942. 33p photos, diagrs, tables (Text in Swedish) Mi $2.25 Ph $5.00

Summary in English

Sweden. Statens Provningsanstalt, Stockholm. Meddelande 87

In conjunction with an investigation of the corrosion of steel plate in contact with water an petrol, a method has been worked out at the Government Testing Institute, Stockholm, for the colorimetric determination of dissolved oxygen in petrol. According to this method a certain quantity of

petrol is transferred to a colorimetric tube with three-way stop-cocks, the tube first being completely filled with a colourless ammonical solution of cuprous chloride. In doing so the petrol may displace a portion of the water solution without coming into contact with the outer air itself. The colorimetric tube is then shaken in a horizontal position (preferably by using a shaking arrangement), when the oxygen dissolved in the petrol oxidizes an equivalent quantity of cuprous chloride. The present article gives a detailed description of the carrying out of the analysis. It also gives some results which have been obtained by this method by the ferrothiocyanate method according to Joule and Wilson and by a gas-volumetric method in which the dissolved oxygen is led off from the petrol by means of carbon dioxide and the ejected gas analysed. In an attempt to determine approximately the distribution factor of the oxygen between petrol and water this was estimated at c: a 15: 1 at + 6° C. It has been found that the oxygen determined according to the cuprous chloride method can be ejected by indifferent gases (carbon dioxide, nitrogen and hydrogen).

PB 89460

Nazarov, V. S.

Contributions to the study of the properties of sea ice. Leningrad, Publishing house of the Chief administration of the northern sea route, 1938. Transactions of the Arctic research institute, v 110. Studies on the properties of ice, part I, art 8. 1938. 16f drawing, graph, tables Mi $1.75 Enl Pr $3.75

1. Ice conditions—Russia

PB 93545

Notuki, M.

Expression of sunspot activity and the relation between sunspots and eruptions. Commission 10. n.d. 1p Mi $1.25 Ph $1.25

1. Sunspots—Japan 2. Tokyo. Astronomical Observatory—Commission 10

PB 89469

Partanskii, M. M.

Climatic conditions of the Russian part of Sakhalin Island. Vladivostok, 1929. 1929. 44f tables Mi $2.50 Enl Pr $7.50

1. Sakhalin Island—Climate—Russia

PB 89484

Ponomarenko, G.

Evaporation and heat exchange in the Sea of Okhotsk. Meteorology and hydrology, 1940, no 10, Oct., p 1-11. Oct 1940. 12f diagrs, maps, table Mi $1.75 Enl Pr $3.75

1. Evaporation—Russia 2. Heat—Transmission—Russia

—62278

PB 92420

Pugsley, A. T. and Winter, G.

Safflower: Potential oil crop for paint. Aug 1947. 59p photo, tables Mi $2.75 Ph $7.50

This report discusses a series of field experiments carried out with safflower in South Australia and the laboratory investigation of the oil obtained from the seeds. The plant is considered suitable for trial as an oil bearing crop in the wheat belt of the southern parts of Australia and requires a standard of husbandry similar to that for wheat. The crop can be sown and harvested with the machinery used for wheat. Good yields of seed and a fair oil content were obtained. The oil is valuable as a drying oil for the manufacture of paints and varnishes. If differs chemically from linseed oil in the absence of linolenic acid and possesses outstanding non-yellowing properties. Its rate of thickening is slower, particularly during the initial stages of heating, but paints based on it dry at least as fast as linseed oil paints when suitable driers are added. Outdoor exposure tests yield results which compare favourably with linseed oil paints over the period for which they have been tested. It is considered that safflower oil could replace linseed oil in most organic coatings and would be an improvement in certain circumstances.

PB 89488

Ratmanov, G. E.

Hydrology of the Bering and Chukchee Seas. 1937. U. S. S. R. State hydrological institute, Leningrad, and Pacific institute of fisheries and oceanography, Vladivostok. Exploration of the far-eastern seas, issue 5, p 10-119. 1937. 29f Mi $2.00 Enl Pr $5.00

1. Hydrology—Bering sea—Russia 2. Hydrology—Chukchee sea—Russia

PB 95671

Ruger, Ludwig and others.

Geology and palaeontology. (FIAT Review of German Science 1939-1946). 1948. 246p (Text in German) Mimeo: $3.00 Mi $9.00 Ph $31.25

1. Geology—Germany 2. Palaeontology—Germany

PB 93553

Saito, Kuniji

Brightness, polarization and electron density of general streamers of the sun. Commission 13. Aug 1946. 9p fold drawing, graph, table Mi $1.25 Ph $1.25

1. Sun—Corona—Japan 2. Solar radiation—Japan 3. Tokyo. Astronomical Observatory—Commission 13

PB 89498

Schoenman, S. M.

Stationary temperature field around regular hexagonal prism of infinite length immersed in an unlimited homogeneous medium. Leningrad, Publishing house of the Chief administration of the northern sea route, 1938. Transaction of the Arctic research institute, v 110. Studies on the properties of ice, part I, art 3. 1938. 9f diagrs, tables Mi $1.25 Enl Pr. $2.50

I. Temperature—Russia 2. Ice—Russia

PB 89508

Shepelevsky, A. A.

Distribution and gradual change of density in snow cover. Leningrad, 1938. Transactions of the Arctic research institute, v 110: Studies on the properties of ice, part I, art 2. 1938. 28f tables Mi $2.00 Enl Pr $5.00

I. Snow—Density—Russia

PB 89153

Skramlik, Emil von

Herztätigkeit beim seeohr (Haliotis tuberculata L). (Cardiac action of the abalone Haliotis tuberculata L). n.d. 5p drawing (Text in German) Mi $1.25 Ph $1.25

I. Abalone—German

PB 88921

Sorge, Ernst

Entstehung von eisbergen in grönland. (Development of icebergs in Greenland). Feb 1940. 23p diagrs, map (Text in German) Mi $2.00 Ph $3.75

I. Icebergs—Greenland

PB 95881

Stockholm. The Royal Institute of Technology (KTH).

K T H, its organization, staff, laboratories and current research work. Feb 1948. 77p Mi $3.50 Ph $10.00

I. Scientific institutes—Sweden

PB 95687

Süss, Wilhelm and others.

Pure mathematics, Part I. (FIAT Review of German Science 1939-1946). 1948. 324p (Text in German) Mimeo: $3.00 Mi $9.00 Ph $40.00

I. Mathematics—Germany

PB 94740

Thunell, Bertil

Förfarande vid hållfasthetsprovning av lim för sammanfogning av trä och klassindelning med hänsyn till motståndsförmågan mot fukt och vatten. 1944. 11p diagrs, tables (Text in Swedish) Mi $1.75 Ph $2.50

I. Glue—Tests—Sweden 2. Sweden. Statens Provningsanstalt, Stockholm. Meddelande 95

—82278

PB 80775a

U. S. Air Force and U. S. Navy Dept.

Fluid: Reference, shear stability. Air Force-Navy aeronautical specification. Sep 1948. 1p Mi $1.25 Ph $1.25

PB 95340

U. S. Air Force and U. S. Navy Dept.

Reels: Shoulder harness, take-up. Air Force-Navy aeronautical specification. Sep 1948. 10p drawing, table Mi $1.25 Ph $1.25

I. Shoulder harness, Safety—Reels 2. AR-R-29

PB 94980

U. S. Air Force.

Set: Library university, air. Jul 1948. 3p tables Mi $1.25 Ph $1.25

I. Libraries, Technical

PB 87736

U. S. Army Air Forces.

Kit: Carpenter and model maker, armament development. Feb 1947. 6p tables Mi $1.25 Ph $1.25

I. Airplanes—Models 2. Carpentry—Equipment

PB 87728

U. S. Army Air Forces.

Set: Development and experimental, parachute. Feb 1947. 2p tables Mi $1.25 Ph $1.25

I. Parachutes—Testing equipment

PB 87729

U. S. Army Air Forces.

Set: Display, equipment, personal. Feb 1947. 2p tables Mi $1.25 Ph $1.25

I. Rescue equipment, Air-sea

PB 85275

U. S. Army Air Forces.

Set: Foundry, engineering shops. Feb 1947. 3p tables Mi $1.25 Ph $1.25

I. Foundry practice—Equipment

PB 87447

U. S. Army Air Forces.

Set: Handling, raw stock, engineering shops. Feb 1947. 1p table Mi $1.25 Ph $1.25

I. Transportation equipment 2. Storage equipment

PB 84930

U. S. Signal Corps.

Miscellaneous material dealing with radio and radar equipment, electrical equipment, etc. 1935-1944. 1380f tables, graphs Mi $7.00 Enl Pr $139.00

This microfilm reel contains the following material. Dissertations on the lift of a thin double wing and on the luminescence of pure zinc sulfide; AEG design data for miniature transformers

and choke coils; German Ordnance radio specifications. An article on the physical properties of ceramic insulating materials from Steatit Magnesia A.G. Berlin 1935; specifications for German aircraft electrical equipment; Handbook of metallic and non-metallic aircraft materials 1942; reports of tests of captured British and French radio equipment and of U.S. AN/APS-15 airborne radar, the 46/1 "Jed" set, and the R 4/ARR 2 receiver; and a U.S. Sig. Corps Intelligence Report on the investigation of electronics targets in the Prague, Czechoslovakia area including data on the manufacture of PbS photocells. In German with the exception of the Sig. Corps report. Micro SIG IS 48

PB 87734

U. S. Army Air Forces.

Set: Research and experimental, structural and mechanical, materials laboratory. Feb 1947. 20p tables Mi $1.75 Ph $2.50

1. Materials, Aircraft—Testing equipment
2. Laboratories, Structural and mechanical

PB 84919

U. S. Signal Corps.

Miscellaneous material dealing with meters, instruments, radio and radar equipment, etc. 1938-1944. 1451f charts, drawings, tables Mi $9.00 Enl Pr $190.00

Miscellaneous materials as follows: Catalogs and price lists for tachometers, galvanometers, frequency meters, oscillographs, etc. from Hartmann & Braun A.G. Frankfurt A.M. Förg & Co. Solin Steeg & Reuter G.m.b.H. Bad Homburg; service manuals for aircraft safety devices from Siemens Apparate & Maschinen G.m.b.H. Berlin; catalog of measuring instruments (in English) from N.V. Philips Gloeilampenfabrieken, Eindhoven, Holland; drawings for submarine radio equipment, manuals for Fu SE 62 C & D, Fu MB 9, FuG 16 ZE, FuG 200 aircraft radio equipment and for the "Berlin" aircraft radar equipment; a report on barrage balloon tests; and the Würzburg basic manual for aircraft reporting. Micro SIG IS 37

PB 84898

U. S. Signal Corps.

Reports on aerology, airborne radar development, direction finding, etc. 1941-1945. 1262f graph (Text in German) Mi $9.00 Ph $165.00

This report will probably not reproduce well

This microfilm reel contains the following material: (a) reports on aerology; (b) reports on airborne radar development and tests; (c) an English translation of a dissertation entitled "speed of propagation, characteristic impedance and damping of electromagnetic waves in dielectric cylinders" and an article from the Reichsamt für Wetteldienst on direction finding of atmospheric disturbances for meteorological purposes. Micro SIG IS 15

—62278

PB 84914

U. S. Signal Corps.

Miscellaneous reports covering electronics, reflection coefficients, solutions of systems of linear equations and tables of Bessel functions. 1939-1944. 1541f charts, graphs (Text in German) Mi $9.00 Enl Pr $201.25

This microfilm reel consists of the following material: (a) miscellaneous Electronics research reports; (b) reports covering reflection coefficients grid systems, and solution of systems of linear equations by means of card—punch machines; and (c) tables of Bessel functions. Micro SIG IS 32

PB 84927

U. S. Signal Corps.

Miscellaneous material on electrical, radio and aeronautical research. 1937-1943. 1500f charts, graphs Mi $9.00 Enl Pr $195.00

This microfilm reel contains the following material: Technical manuals for (1) The TM 5 A pedal generator for operation of a 5 Watt transmitter. (2) a portable radio unit, and (3) a D. C. generator; and reprints from the following publications on electrical, radio and aeronautical research:

Yearbook of AEG research Jan 1939; Article on on the Microscopic study of synthetic resins, Emil Busch A.G. Rathenow; Article on automatic volume controls from Philips' "Miniwatt" monthly; Luftfahrotforschung Vol 14, No 7, 1937; Hochfrequenztechnik und Elektroakustik Vol 52, 1938, Vol 54 1939, and Vol 58, 1941; Elektrotechnische Zeitschrift vol 60, 1939, vol 62, 1941, and vol 64, 1943; Funk, Apr. and June 1938; Elektrische Nachrichtentechnik Vol 8 No 15, 1938; Funktechnische Monatschefte No 1-No 12, 1941; Hochfrequenz Nachrichtentechnik, May 1941; and Philips' Technische Rundschau vol 2 No 10, 1937, Vol 5, Nos 1 and 12, 1940, vol 6 nos. 2,4,7,9, and 11, 1941, and vol 7, no 5 1942. Micro SIG IS 45.

PB 89534

U.S.S.R. Central Bureau of the Hydrometeorological Service.

State of ice in the seas of the U.S.S.R., winter 1924-1932. v 1- Leningrad, 1926-1936. 117f tables Mi $4.75 Enl Pr $16.25

1. Ice conditions—Russia

PB 89534s

U.S.S.R. Central Bureau of the Hydrometeorological Service.

State of ice in the seas of the U.S.S.R., winter 1924-1932. v 2. Leningrad, 1926-1936. 161f tables Mi $6.25 Enl Pr $22.50

1. Ice conditions—Russia

PB 89534s2

U.S.S.R. Central Bureau of the Hydrometeorological Service.

State of ice in the seas of the U.S.S.R., winter 1924-1932. v 3. Leningrad, 1926-1936. 256f Mi $9.00 Enl Pr $33.75

Supplement 2 to PB 89534

I. Ice conditions—Russia

PB 89534s3

U.S.S.R. Central Bureau of the Hydrometeorological Service.

State of ice in the seas of the U.S.S.R., winter 1924-1932. v 4. Leningrad, 1926-1932. 137f tables Mi $5.50 Enl Pr $18.75

Supplement 3 to PB 89534

I. Ice conditions—Russia

PB 89534s4

U.S.S.R. Central Bureau of the Hydrometeorological Service.

State of ice in the seas of the U.S.S.R., winter 1924-1927. v 5. Leningrad, 1926-1936. 58f tables Mi $2.75 Enl Pr $8.75

I. Ice conditions—Russia

PB 89534s5

U.S.S.R. Central Bureau of the Hydrometeorological Service.

State of ice in the seas of the U.S.S.R., winter 1924-1925. v 6. Leningrad, 1926-1936. 6f Mi $1.25 Enl Pr $2.50

I. Ice conditions—Russia

PB 89557

Veinberg, B. P.

Ice and snow regulation. Leningrad, Publishing house of the Chief administration of the northern sea route, 1938. Transactions of the Arctic research institute, v. 110: Studies on the properties of ice, part I, art I. 1938. 20f Mi $1.75 Enl Pr $3.75

I. Ice conditions—Russia 2. Snow—Russia

PB 89560

Vinokurov, G. A.

Notes on spontaneous crystallization of water. Leningrad, Publishing house of the Chief administration of the northern sea route, 1938. Transactions of the Arctic research institute, v 110. Studies on the properties of ice, part I, art 4. 1938. 4f Mi $1.25 Enl Pr $2.50

I. Crystallization—Russia 2. Water—Freezing—Russia 3. Ice formation—Russia

PB 89579

Vitman, F. F. and Shandrikov, N. P.

Study of the mechanical strength of ice. Leningrad, Publishing house of the Chief Administration of the northern sea route, 1938. Transactions of the Arctic research institute, v. 110: Studies on the properties of ice part I, art 7. 1938. 40f photos, diagrs, graphs, tables Mi $2.25 Enl Pr $6.25

I. Ice conditions—Russia

—62278

PB 94466

Wood, John H.

Determination of towline tension and stability of spin-recovery parachutes. Mar 1946. 32p photos, drawings, graphs, tables Mi $2.25 Ph $5.00

Tests have been made of a number of spin-recovery parachutes from 1 foot to 8 feet in diameter in order to determine the force exerted by the parachutes on the towline and the stability of the parachutes. The magnitude of the shock load of a parachute during opening was also measured. In addition, the effects of various modifications to the parachutes on the towline tension and stability were investigated. For several of the parachute arrangements, a free drop was simulated and the drag of the parachute was determined. The test results indicated that the average towline-tension coefficient, based on the surface area of the canopy, was approximately 0.76 for conventional silk spin-recovery parachutes and 0.56 for a nylon parachute. The shock loads obtained during parachute openings for restrained parachutes were as great as 2.29 times the average final loads. All the conventional parachutes tested were unstable and inclined away from the wind axis. Various methods were tried to decrease the instability and increase the towline tension, such as varying shroud-line length, adding a central shroud line, varying the size of the canopy vent, and adding radial vanes to the canopy and shroud lines. These tests indicated that very little could be done to increase the towline-tension coefficient of the conventional silk parachute but that the stability could be increased by adding radial vanes to canopy and shroud lines although towline-tension would be lowered. Tests were also made of pyramidal and square pilot parachutes. These parachutes were generally more stable than conventional ones but gave lower values of towline-tension coefficients. NACA L-267

PATENTS

Chemicals and Allied Products

PB 85196

Auszüge Deutscher patent-anmeldungen. Band III. Chemie. Klasse 39, 75. (Abstracts of German patent applications. Vol. III chemistry. Classes 39, 75). (Vol. 8 of the series). Oct 1947. 638p (Text in German) Printed copy: $5.00 (Bib. v. 9, p. 356)

I. Chemistry—Patents—Germany 2. Rubber—Patents—Germany 3. Plastics—Patents—Germany 4. Ornamentation, Surface—Patents—Germany

PB 88830

Auszüge deutscher patent-anmeldungen. Band II. Chemie. Klasse 12a-n, 16, 85a-c, 78,53,2,6,89. (Abstracts of German patent applications. Vol II. Chemistry. Classes 12a-n, 16, 85a-c, 78,53,2,6,89). (Vol. 7 of the series)). n.d. 888p (Text in German) Mimeo: $5.00 (Bib. v. 10, p. 141)

1. Chemistry, Inorganic—Patents—Germany 2. Fertilizers and manures—Patents—Germany 3. Waste water—Purification—Patents—Germany 4. Explosives—Patents—Germany 5. Food—Patents—Germany 6. Fermentation industry—Patents—Germany 7. Ovens—Patents—Germany

PB 73604t4

Böhme, A. Th. Chemische Fabrik, Dresden, Ger.

Process for manufacturing water-soluble condensation products. Sep 1948. 6p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $12.75

1. Condensation products—Patents—Germany 2. Micro FIAT C 194, Frames 9755-9759, trans.

PB 20845s7

Description of various processes for H_2S extraction from gases or for recovery of S from gases containing H_2S. n.d. 2p table Mi $1.25 Ph $1.25

Supplement 7 to PB 20845

1. Gases—Purification—Patents—Germany 2. Patents—Germany—Z 23,254, 121-17, n.d. 3. Micro FIAT C 128, Frames 1-945, Supp. 7 4. Micro TOM 208, Frames 1-945, Supp. 7

PB 19921t

Deutsche Celluloid-Fabrik A. G., Eilenburg, Ger.

New agent for hardening cold-hardening phenol-aldehyde resins. Sep 1948. 6p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $8.75

1. Resins, Phenol aldehyde—Patents—Germany 2. Varnishes—Patents—Germany 3. Micro FIAT Patents 145, Frames 4471-4473, trans.

PB 19921t3

Deutsche Celluloid-Fabrik A. G., Eilenburg, Ger.

Process for producing solutions, or plastic materials from secondary cellulose acetate. Sep 1948. 5p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $8.50

1. Solvents—Patents—Germany 2. Cellulose acetates, Recovered—Solvents—Patents—Germany 3. Micro FIAT Patents 145, Frames 4768-4770, trans.

PB 94836

Deutsche Hydrierwerke A. G., Rodleben, Ger.

Adhesive using resinolic acid resins. Aug 1948. 4p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $4.00

1. Adhesives—Patents—Germany 2. G. P. 722739

—62278

PB 20527t

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.

Emulsifying agents from mixtures of higher-molecular weight alcohols and hydrocarbons. Sep 1948. 6p Available from Research Information Service, 509 Fifth Avenue, New York 17, N.Y. $7.50

1. Micro FIAT Patents 149, Frames 3035-3038, trans

PB 25616t6

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.

Molded shapes of low specific gravity from polyvinyl chloride or its copolymers. Aug 1948. 6p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $8.75

1. Polyvinyl chloride—Molding—Germany 2. Micro FIAT Patents 172, Frames 1033-1041, trans.

PB 73604t3

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.

Process for manufacturing rapidly cold-hardening plastic materials resistant to acids and alkalies. Aug 1948. 4p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $5.00

1. Plastics—Hardening—Patents—Germany 2. Micro FIAT C 194, Frames 9281-9282, trans.

PB 25616t5

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.

Process for preparing stable aqueous lacquer resin emulsions. Sep 1948. 6p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $11.25

1. Lacquers—Manufacture—Germany 2. Micro FIAT Patents 172, Frames 916-919, trans.

PB 20543t7

I. G. Farbenindustrie A. G., Leverkusen, Ger.

Economical production of carbon bisulfide. Oct 1948. 4p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $4.75

1. Micro FIAT Patents 159, Frames 4379-4380, trans

PB 20543t6

I. G. Farbenindustrie A. G., Leverkusen, Ger.

Process for manufacturing hardened plastic materials on a triazine-formaldehyde basis. Sep 1948. 8p Available from Research Information Service, 509 Fifth Avenue, New York, 17, N. Y. $12.75

1. Micro FIAT Patents 159, Frames 4910-4915, trans

PB 20543t5

I. G. Farbenindustrie A. G., Leverkusen, Ger.
Supplement to process for economical production of carbon bisulfide. Oct 1948. 3p Available from Research Information Service, 509 Fifth Avenue, New York, N. Y. $4.00
I. Micro FIAT Patents 159, Frames 4556-4557, trans

PB 25616t4

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Improved process for producing phenolic plastics. Sep 1948. 4p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $5.25
I. Plastics, Phenolic—Production—Germany 2. Micro FIAT Patents 172, Frames 660-662, trans.

PB 73604t2

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
New agents for use in polymerizing unsaturated organic compounds in aqueous emulsion. Sep 1948. 9p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $17.50
I. Organic compounds—Polymerization—Patents—Germany 2. Micro FIAT C 194, Frames 9982-9987, trans.

PB 25612t2

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
New process for producing ethylene glycol. May 1948. 10p Available from Research Information Service, 509 Fifth Ave., N. Y. 17, N. Y. $15.00
Translation of Micro FIAT Patents 168, Frames 6879-6885
I. Ethylene glycol—Production—Germany

PB 25613t2

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Plastic materials suitable for insulation purposes. Aug 1948. 6p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $8.25
I. Plasticizers—Preparation—Patents—Germany 2. Micro FIAT Patents 169, Frames 7996-7998, trans.

PB 25611t

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Process for obtaining chlorine from gas mixtures. May 1948. 9p drawing, graph Available from Research Information Service, 509 Fifth Ave., N. Y. 17, N. Y. $10.50
Translation of Micro FIAT Patents 167, Frames 5999-6004
I. Chlorine—Production—Germany

PB 25610t2

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Process for preparing formic acid. Sep 1948. 5p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $8.75
I. Formic acid—Preparation—Patents—Germany 2. Micro FIAT Patents 166, Frames 5420-5423, trans.

PB 25612t

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Process for producing purest sulfur. May 1948. 5p Available from Research Information Service, 509 Fifth Ave., N. Y. 17, N. Y. $7.50
Translation of Micro FIAT Patents 168, Frames 6929-6932
I. Sulfur—Production—Germany

PB 25613t3

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Process for reactivating and purifying ion exchangers. Aug 1948. 4p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $8.00
I. Catalysts—Patents—Germany 2. Resins, Ion exchange 3. Micro FIAT Patents 169, Frames 8543-8545, trans.

PB 25613t

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Processing of aqueous dispersions of vinyl chloride polymers. Aug 1948. 4p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $6.25
I. Polymerization—Patents—Germany 2. Vinyl chloride—Polymers—Patents—Germany 3. Micro FIAT Patents 169, Frames 7881-7883, trans.

PB 25612t3

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Production of chlorine from hydrogen chloride. May 1948. 5p Available from Research Information Service, 509 Fifth Ave., N. Y. 17, N. Y. $6.75
I. Chlorine—Production—Germany 2. Micro FIAT Patents 168, Frames 7676-7679, trans.

PB 25616t7

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Production of waterproof coatings, films, and other shapes from aqueous dispersions of film-forming substances. Aug 1948. 2p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $2.00
I. Coatings, Water repellent—Germany 2. Micro FIAT Patents 172, Frames 1423, trans.

PB 34282t

I. G. Farbenindustrie A. G., Wolfen, Ger.
Process for improvement of the properties of shapes made from high-polymeric polyamides, polyesters, polyureas, polyurethans, etc. Mar 1948. 7p table Available from Research Information Service, 509 Fifth Ave., N. Y. 17, N. Y. $7.50
Translation of Micro FIAT Patents 143, Frames 3402-3405

PB 34217t

I. G. Farbenindustrie A. G., Wolfen, Ger.
Process for preparing readily water-soluble basic polymethine dyes. Nov 1948. 14p

Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $18.00

I. Micro FIAT Patents 143, trans

PB 34278t

I. G. Farbenindustrie A. G., Wolfen, Ger.

Process for producing new yellow proto-dyes. Dec 1948. 6p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $14.50

I. Micro FIAT Patents 143, trans

PB 34205t

I. G. Farbenindustrie A. G., Wolfen, Ger.

Process for producing symmetrical and unsymmetrical, possibly mesosubstituted carbocyanine dyes. Nov 1948. 19p Available from Research Information Service, 509 Fifth Avenue, New York 17, N.Y. $19.75

I. Micro FIAT Patents 143, trans

PB 45461t

I. G. Farbenindustrie A. G., Wolfen, Ger.

Pyrazolones not reacting with aldehydes. Jun 1948. 7p tables Available from Research Information Service, 509 Fifth Ave., New York 17, N. Y. $8.50

I. Pyrazolone—Derivatives—Germany 2. Micro FIAT Patents 144, Frames 3625-3630, trans.

PB 19920t3

Mediger, Harald

Plasticizers for production of polyvinyl chloride pastes of unlimited storing capacity. Aug 1948. 7p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $11.00

I. Plastics—Manufacture—Patents—Germany 2. Patents—France 744229 3. Micro FIAT Patents 146, Frames 5820-5824, trans.

PB 19920t5

Mediger, Harald

Process for manufacturing porous hollow plates from polymers or polycondensates. Aug 1948. 11p drawing Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $19.00

I. Condensation products—Patents—Germany 2. Micro FIAT Patents 146, Frames 6082-6088, trans.

PB 19920t4

Mediger, Harald

Process for producing nitrocellulose masses or solutions without the use of solvents. Sep 1948. 6p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $10.00

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